American Vegetable Grower

DECEMBER 1953

Holiday Greetings

CONCENTRATE SPRAYERS DOMINATE WINTER VEGETABLE SHOWS

By M. A. Devereaux

This is the first in a series of articles dealing with economical concentrate spray equipment. We believe that every grower should read this article because it does indicate a very real way to reduce costs and still maintain the maximum percentage of extra fancy vegetables.

A review of the 1953 field reports on concentrate spraying indicates excellent results from every section of the country. In looking over these reports, particular attention has been directed to the period of time that the various vegetable growers have been using concentrate spraying equipment. Some date back to 1946, while others have been using concentrate equipment a comparatively short time. The composite result of this survey indicates that all owners of concentrate spray equipment have been getting excellent results at substantial savings.

Leading in this field will be the Buffalo Turbine which, eight years ago, built the first commercially accepted concentrate sprayer. Since that time tremendous progress has been made and the Buffalo Turbine today is recognized as the outstanding concentrate sprayer on the market. Nationwide 1953 experience indicates that Buffalo Turbine owners have realized at least a 28% reduction in spraying costs.

Additional information developed in connection with these surveys indicates that concentrate spray equipment is available at a cost anywhere from $1400.00 to $6000.00 per unit. Upon further investigation, it is found that the Buffalo Turbine at an original cost of from $1400.00 to $2700.00, actually does the job of growing extra fancy vegetables just as well as the most expensive equipment. These studies actually show that Buffalo Turbine owners are getting more for their dollar invested in a Buffalo Turbine than in any other equipment.

From Maryland, Pennsylvania, New York, Michigan, Illinois, Wisconsin, Florida, Idaho and California, come additional grower reports to the effect that their Buffalo Turbine has performed extremely well, and that their 1953 crops were excellent.

For the grower who is considering the purchase of sprayer equipment for the 1954 season, we suggest that careful attention be given to the Buffalo Turbine concentrate sprayer, which will be displayed at most of the winter vegetable shows. While there are many things to be considered in connection with the purchase of sprayer equipment, the grower will find the following questions very important.

1. Original cost?
2. How do these machines operate under actual field conditions?
3. Is the operation of the machine economical?

Buffalo Turbine in 1954, through its field research department, is prepared to see that interested growers have an opportunity of actually seeing a Buffalo Turbine in field work. These arrangements will be made through our distributors, and will give growers an opportunity to question the owner regarding its performance. Buffalo Turbine owners are satisfied owners, and are our best salesmen. Let them tell you how their Buffalo Turbine has reduced their spraying costs an average of 28%, which resulted in increased profits. Buffalo Turbine built the first concentrate sprayer that was sold to growers eight years ago. Today Buffalo Turbine is continuing to supply this trouble-free, dependable equipment.

Won't you be sure to call on us at your vegetable show? If, for any reason, you cannot attend, drop us a line so that we can help answer your questions through actual demonstration.

BUFFALO TURBINE
AGRICULTURAL EQUIPMENT COMPANY, INC.
GOWANDA, NEW YORK

LETTERS TO THE EDITOR

Asparagus Snapper

Dear Editor:

I was very much interested in the September mechanization issue and particularly the article on the asparagus harvester. It prompted me to write you regarding our asparagus picker.

I live about 30 miles southeast of Gary, Ind., and the Calumet industrial area and have about nine acres of asparagus. Before building the asparagus picker, photograph of which is enclosed, the procedure was to cut and bunch the asparagus and sell it on the Chicago markets. This required the labor of about 10 people for a 10-hour day. During the war we became desperate for help, and a canning factory introduced the snapping method of harvesting our asparagus. Our local blacksmith then invented an asparagus harvester that would allow four people to ride and snap the asparagus. This took the backache out of asparagus harvesting and at the same time reduced the amount of labor to five people for a five- to five and one-half-hour day. Our crop averages about two tons per acre.

The asparagus harvester has taken the backache out of picking and also reduced labor.

The harvester is built on rubber tires with swing seats. It is attached to the drawbar of the tractor. The height of the seats are adjusted by raising and lowering the drawbar to which the harvester is attached and the wheels may be adjusted either in or out according to the width of the rows.

There are several hundred acres of asparagus in this community, and almost every farm has one of these harvesters. They are made in two to three- and four to six-row harvesters. Our help consists chiefly of school children from the age of 10 years on up. It is my opinion that this machine would not work for cutting asparagus because the riders ride between the rows, but it can't be beat for snapping asparagus.

In southern Michigan we have sold about 30 of these machines. They are also being used to pick blossoms off young strawberry plants there.

Demotte, Ind. Ernie Eenigenburg

Easier Tomato Harvest

Dear Editor:

When I open each issue of AMERICAN VEGETABLE GROWER I am always pleased with what I find. The covers are attractive, too. One of the things I always look for are mechanical devices growers are using to make their work easier, faster, or cheaper. There is a lot of hard work in growing a crop of tomatoes, for example. In my opinion, picking is the hardest job, and I would like to make this a pleasanter task for my pickers. If I can make it easier for them, they are going to be better satisfied; and I will, too.

I am wondering if any tomato growers have developed devices for easing picking of tomatoes, or ways of taking the "stoop" out of tomato picking. I am sure many other growers are in the same plight, so maybe someone will write in to you, and you can pass the information on to all of us.

New Brunswick, N. J. J. C. Daniels

Vegetable Consumption

Dear Editor:

I read with much interest the article, "The Trend in Vegetable Consumption," in your October issue. To vegetable growers, the figures Mr. Mumford presented are timely and useful in planning our long-range production programs. They are really packed full of food for thought.

I wish to suggest one of the ways in which I can use such information. I grow vegetables for a local market and so sell some for home processing. Broccoli is one of my crops. I noticed that frozen consumptoin of this vegetable, as many others, is on the increase; and in my area it is growing more popular each year.

I am planning to cultivate this market, grow the best broccoli I can, and get it to the housewife as soon as possible so she can freeze it at its prime flavor. I can look forward to expanding this particular business because on a national scale it looks promising, too. If I produce more than my local market can absorb, I'm pretty sure of a market elsewhere because it is an item in growing demand.

Just keep up the good work. Give us the facts and figures and we will make good use of them.

Harrisburg, Pa. M. L. Smith

Manufacturer of Aluminum Sash

Dear Editor:

We are trying to locate someone from whom we can obtain aluminum or metal hotbed sash. I thought perhaps you would know of a company that handles these. Any information that you can furnish will be greatly appreciated.

Fayetteville, Ark. Cecil Blackwell

The Hidden Springs Company, Katonah, N. Y., advertise solid aluminum cold frame sash, 40x36 and 40x54.—Ed.

Roadside Marketing

Dear Editor:

I was very much interested in the roadside market article in your October issue. Being a market gardener I am as interested in selling my produce as I am in growing it. If there are ways other vegetable growers are using to sell their products I would like to read about them.

So far you haven't forgotten the selling end of the vegetable business. If you hold this attitude you will make many more reader friends.

Atlanta, Ga. R. V. Knox

American

VEGETABLE GROWER

(Commercial Vegetable Grower)

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The VEGETABLE Situation

FALL PRODUCTION of principal commercial vegetables for fresh market is expected to be only slightly under that of last year. Weather was generally favorable in the northeastern states, creating good harvest conditions. In the southeastern and western states, with the exception of Florida, Texas, Oregon, and Washington, rainfall was light which has retarded the development of vegetables somewhat. Heavy rains restricted field activity in the Texas Panhandle section, delaying harvest of the fall lettuce crop and reducing quality of tomatoes in some sections.

SNAP BEANS

Production of snap beans is now expected to be 2,530,000 bushels. In Virginia, fields which were planted after the hurricane turned out unexpected heavy yields. Bulk of acreage was picked by November 10. In Mississippi and Arkansas, yields were cut because of dry fall weather. Good weather in October favored heavy production in California and improved yield prospects.

CABBAGE

Indications are for a slightly higher production this year than last for early fall cabbage. Timely rains increased yield prospects in the eastern states. Insufficient rainfall resulted in yield reductions in Michigan, Ohio, and Indiana.

The late fall cabbage production will probably be lower than last year. The North Carolina crop was about two weeks late because of late planting following the August hurricane. A short crop is anticipated in South Carolina.

CARROTS

Production of early fall carrots will probably be slightly higher than last year. Harvest in Utah and New Mexico is in the cleanup stage, and most of the crop has been pulled in Wisconsin and Michigan.

Forecast for late fall carrots in California has declined from last year. This was due mainly to the sharp reduction in acreage. Harvest is active there and volume supplies of both bunched and topped carrots are available.

CELERY

Production of late fall celery is expected to be slightly under that of last year. Bulk of this crop is grown in California, where shipments increased sharply in October in anticipation of pre-Thanksgiving demand. In New Jersey, muck celery is all harvested, although moderate supplies are still coming from upland fields. Sizes there are generally large.

CUCUMBERS

Indications are for a late fall crop slightly under that of last year. In Florida, approximately 11 per cent of the planted acreage was lost and not replanted. The bulk of the crop will move between mid-November and early January.

GREEN PEPPERS

Production of the fall crop will be less than last year. In Virginia, the crop never recovered from the August hurricane, and prospects are the poorest in years. Plants and pods are smaller than usual, and the crop is of poor quality. Good quality peppers are available in Texas. The development of the Florida crop was hampered by excessive rains.

SPINACH

Prospects for late fall spinach are good. In Arkansas, considerable acreage is being irrigated. Non-irrigated spinach benefited from a good rain in October, but more is needed. In Virginia spinach made fairly good progress.

TOMATOES

Production of late fall tomatoes is 25 per cent under that of last year. Development of the fall crop in Texas has been satisfactory. The situation in Florida is uncertain. Following excessive rains, most of the older crops fell prey to disease. Since loss of crown sets has been extensive, outcome of the crop will depend largely upon ability of plants to make a top crop.

POTATOES

Total potato production for 1953 is now estimated at 370,856,000 bushels. Late fall crop was nearly all harvested by November 1. In New England, weather conditions were favorable for completion of harvest. Snow interfered briefly, but no great loss occurred.

SWEETPOTATOES

Indications are for a crop 18 per cent larger than last year. Dry weather in Louisiana during October curtailed sizing, and production is turning out smaller than previously indicated.

MANAGING THE Vegetable Enterprise

Today's successful farm manager knows all the facts about his enterprise and makes easy work of important decisions

By FRANCIS A. KUTISH

FARM management used to be looked on as a fund of knowledge passed down from father to son. Today, it has become the art of decision-making.

And the farm manager growing vegetables faces many important decision-making problems in insuring an adequate supply of competent seasonal labor; providing adequate housing for this labor at a reasonable cost; organizing and managing this labor; designing a cost accounting system; and deciding when, where, and how to market.

Take the case of Claude H. Hormel, who manages the asparagus operations for both the P. D. McMillian Land Company and the Lilly Farms, Inc., in the Hollandale, Minn., area. As executive secretary for the Hollandale Asparagus Growers' Association — formed exclusively for harvesting asparagus of these two companies, plus that of a local grower, Mr. Ward—Hormel has the responsibility of harvesting 750 acres of asparagus.

This harvesting organization has successfully functioned for the last seven years. Texas Mexican families are used entirely for labor. One responsible Mexican, who has been with the harvesting organization for the entire seven years, has been advanced to handle the majority of the recruiting work in Texas in late winter and spring. Then he acts as a general field boss of all the labor at Hollandale during the working season.

About 200 workers are employed at harvest. They are divided into seven crews of between 25 and 30 workers—each with a Mexican foreman. Most of these foremen have graduated from the ranks of workers. Hormel has found that in general it pays to place as much responsibility as possible with these Mexicans as they grow and prove themselves with the organization.

All of the growing operations under the McMillian Land Company, which Hormel manages, are subject to rigid cost accounting. No particular forms are used. Bills are paid monthly and distributed to various accounts. Man labor is distributed by hours daily, then transferred to master sheets monthly and distributed in dollars quarterly. Tractor hours are handled in a similar manner but are distributed annually to productive accounts the same as equipment costs. Hormel compiles an annual report, summarizing and analyzing all accounts.

In New Jersey, near Bridgeton, are the Seabrook Farms. They operate 20,000 acres—all in vegetables—except for 2,000 acres in soil-building crops. Their land is divided in 11 divisions—each under a manager. Complete cost accounting is kept on each division individually, both by operations and by crops.

Cost accounting at Seabrook is a dynamic management tool. Costs are kept and *published* daily. The clerical work is done by a night force and at 6:00 AM cost statements are published for the previous day's activities. This is part of Seabrook Farms' supervisory incentive system, and according to W. J. Scheffer, plant manager, one of the farms' prime management tools for making direct operation by all hired help practical.

Another solution to this incentive problem would be a profit-sharing system. Scheffer points out, however, that you cannot establish profits daily, but only at the end of the year. Then there is the question of the comparative contribution of the manager and his assistants to the profit. That's why, at Seabrook, incentive is based on comparative costs—which can be established daily and which can be controlled by the manager to a very large degree.

Thus, management personnel becomes the prime requirement and principal bottleneck. You have to have land, equipment, and operating capital

(Continued on page 16)

The author, FRANCIS A. KUTISH, is extension economist at Iowa State College, Ames, Iowa.

Recent Developments in CALIFORNIA'S LETTUCE INDUSTRY

A big shift in acreage to the Great Lakes variety and wide use of the vacuum cooling process highlight activities of the nation's biggest lettuce producer

By J. E. WELCH
and
THOMAS W. WHITAKER

This loader-conveyor harvester also carries the packers. Paperboard cartons are assembled or "stitched" right on the harvester, thus speeding the packing operation.

THE CALIFORNIA commercial lettuce crop in 1952 was harvested from 128,600 acres, had a value of $78,754,000, and the production represented 62 per cent of the commercial lettuce grown in the United States in this year.

The winter producing areas are confined almost exclusively to the interior, desert valleys of Southern California. The Imperial Valley is the principal producing district of the state in this season. Harvesting dates range from November 20 to April 15 with most activity during January and February. In 1952 in these areas 30,000 acres were harvested having a value of $22,638,000.

The most important early spring districts are located in the central coastal sections with the Salinas-Watsonville area supplying the greatest volume. The Santa Maria area in the same section and the Oxnard district in the south coastal area also produce considerable volume at this season. Usual harvesting dates are from March 25 to May 31 with the greatest activity from April 15 to May 31. In 1952 the early spring crop was harvested from 30,500 acres and had a value of $13,954,000.

The summer producing districts are confined to the coastal areas with the central coastal Salinas-Watsonville district supplying the bulk of the volume. The Santa Maria area in the same section also produces considerable amounts in this season. Usual harvesting dates are from June 1 to August 31 with the whole period being active. In 1952, 28,700 acres were harvested having a value of $21,222,000.

The most important early fall districts are located in the coastal sections with the central coastal Salinas-Watsonville area being the principal producing district. The Santa Maria area is also important in this season, and the Oxnard district in the south coastal section is about third in volume. Usual harvesting dates are from September 1 to December 15 with most activity in September through November. In 1952 the early fall crop was harvested from 38,600 acres and had a value of $20,940,000.

The variety Great Lakes, developed by the USDA, was released to commercial seed growers in co-operation with the Michigan Agricultural Experiment Station for increase in 1942.

Varieties employed in the winter producing areas of California since the release of Great Lakes have not changed as much as they have in other harvesting seasons. The trend in the winter areas is to plant Great Lakes for maturity at the beginning and at the end of the season when the crop is exposed to high temperatures for relatively long periods.

In the early spring districts as late as 1948 several varieties were grown, the most important being Imperial 615 and E-4. Within the following two-year period a tremendous shift in varieties occurred and at present some growers in these districts plant Great Lakes exclusively. Many growers, however, plant cool season varieties like Imperial 615, Imperial 101, and K-1 for harvest prior to about May 1 and complete the early spring season with Great Lakes.

In the summer producing areas important changes in the use of varieties took place beginning about 1948. Imperial 847 and E-4 were the most popular varieties. Since about 1950 almost all lettuce planted in the state for summer harvest has been Great Lakes.

In the early fall districts, the release of Great Lakes has also resulted in tremendous varietal changes. These areas prior to about 1948 grew a large number of varieties, the most important being Imperial 847 and Imperial 44. Since about 1950 almost all early fall lettuce in California has been Great Lakes.

The chief factors responsible for the shift to the Great Lakes variety are its heavier weight per unit and the

Author J. E. WELCH is in the Department of Vegetable Crops, University of California, Davis; author THOMAS W. WHITAKER is in the Division of Vegetable Crops and Diseases, USDA, La Jolla, Calif.

Vacuum-cooled lettuce in paperboard cartons being put on conveyor which carries it to waiting refrigerator cars for transportation to markets throughout the U. S.

fact that it will make marketable heads under adverse conditions.

Practices which might reduce production costs are always being investigated by growers and others associated with the industry. Coated seed is the term now generally used to refer to one seed which has had sufficient materials added to it to make an approximately round pellet. Coated seeds were developed primarily to facilitate precision planting, a procedure which should reduce thinning costs of row crops by eliminating plant clumps which require much finger-work to remove. Coated lettuce seed is increased in weight about 60 times in producing a pellet from 10/64 to 12/64 of an inch in diameter. This type of lettuce seed appears to have possibilities but up to the present it has not been widely used.

The frequent occurrence of poor stands and delayed emergence are the present chief objections to coated lettuce seed. Thinning operations are expensive and the use of coated seed appears to be one way in which these costs might be reduced. More satisfactory precision planters and possibly different coating materials should help in bringing coated lettuce seed into more general use.

Seed-borne lettuce mosaic virus is usually present in from one to three per cent of the seed of varieties commonly planted for market in California. At average seeding rates this means that there is one seed-borne mosaic infected plant in about every four feet of bed before thinning. However, secondary spread by aphids from the seed-borne infected plants to adjacent healthy plants must take place before serious economic damage occurs. Mosaic is the most important disease of lettuce in the coastal districts of California and is often responsible for tremendous reductions in yields.

Recent results of the lettuce research program at the University of California, Davis, evolved a method of producing mosaic-free seed and demonstrated that its use controlled the disease in large scale field plantings. Several of the large lettuce seed growers of the country are attempting to produce mosaic-free seed, and two companies sold limited quantities for market lettuce crops in 1953.

The proportion of the fertilizer used on lettuce crops in California in the gaseous and liquid forms has increased considerably during the past few years. A common source of nitrogen is anhydrous ammonia which is delivered in steel cylinders in a gaseous form. This material may be applied in the irrigation water, or it may be injected into the soil in a band paralleling the plant rows.

The use of liquid fertilizers containing nitrogen and phosphorus, and sometimes potassium, has expanded recently. These materials are applied in the irrigation water or are injected into the soil in a manner similar to that used for anhydrous ammonia. At present liquid fertilizers, exclusive of anhydrous ammonia, comprise about 10 per cent of the total amount of fertilizer used on all crops in California. Vegetable crops, however, receive proportionately more gaseous and liquid fertilizers than field crops.

Nitrogenous liquids are as high as 40 per cent nitrogen, and phosphatic liquids are as concentrated as 54 per cent phosphoric acid. Liquid sources of nitrogen and phosphoric acid are applied to give common formulas like 10-12-0, 16-10-0, 17-7-0, and many others. Muriate of potash may be included in liquid fertilizers to supply potassium if this element is desired. In the important Salinas-Watsonville area iron is sometimes a constituent of liquid fertilizers applied to lettuce.

Loader-conveyor harvester alongside which packers walk. The paperboard cartons for this type of harvester are assembled before they arrive in the field.

Spectacular and rapid changes in harvesting and packing of lettuce have come about, mostly in the last two years, as a result of the vacuum cooling method. This patented process has resulted in a phenomenal shift from the ice pack four dozen western woodshook crate to the dry pack two dozen paperboard carton.

In the vacuum cooling method about 320 dry pack paperboard cartons, equivalent to one-half a railroad refrigerator car, are mechanically placed in a large steel tube. The air pressure in the tube is lowered by the use of a steam jet, and the decreased air pressure is maintained for a period sufficient to precool the lettuce at the heart to 34° F. but not below 32° F. The period a load remains in the tube is less

(*Continued on page 21*)

Ed Yonkers (left) and Dick Leeuwenbergh examine one of their plantings of Washington Strain of Grand Rapids leaf lettuce. The 34x375-foot hothouses were constructed in 1915 and are heated by a gravity flow hot-water system.

Birth of the MIDWEST GREENHOUSE INDUSTRY

This historic event in Grand Rapids, Mich., three-quarters of a century ago finds its counterpart today in important contributions which continue to come from this area

By S. H. WITTWER

Michigan State College

COMMERCIAL vegetable forcing in the Middle West had its birth in Grand Rapids, Mich. It came from a small beginning in 1876 when Eugene Davis constructed his first greenhouses on Kalamazoo Street in southeast Grand Rapids. In the ensuing years the industry developed into one which supplied practically all the greenhouse produce consumed in the large cities of the Middle West. At present only 35 to 40 acres are devoted to greenhouse vegetable production. Though somewhat smaller than a few years ago, it still supplies all of Michigan, outside of the Detroit area, with hothouse tomatoes and leaf lettuce.

The historical significance of the area and the contributions of the growers to the science and art of growing vegetables under glass mark it as one of the most interesting and progressive greenhouse centers in the United States. It was in Grand Rapids, Mich., that the famous Grand Rapids leaf lettuce had its origin, and where the Washington Strain has found its greatest favor. Originally, the Washington Strain of Grand Rapids was introduced by the USDA, but the original stock has since been maintained and continually improved by careful selection within greenhouses in Grand Rapids.

Following the selections made by Eugene Davis, the late Reynard Yonkers maintained the Washington Strain for many years, finally in 1942 passing the responsibility on to his son, Ed Yonkers, and Dick Leeuwenbergh. Careful selection has resulted in plants of uniform appearance that approach perfection, and no sports appear.

Once in two years a seed crop is produced in the greenhouse and a part of this stock seed is sent to the West for increase. The importance of selecting seed for greenhouse performance is recognized by these growers.

In addition to the Washington Strain, the Tipburn Resistant Strain of Grand Rapids, developed by the Ohio Agricultural Experiment Station, finds favor for early fall or late spring. During the winter months, however, the Washington Strain is grown exclusively. Growers say it is more productive, has greater uniformity, bunches up better, and is more curled.

Many problems of seed increase and distribution are handled by the Grand Rapids Growers Association, Inc., which had its origin in an association of greenhouse vegetable growers formed in 1914. From 1919 to 1933 marketing and buying were on a cooperative basis. However, because of financial difficulties the association of growers was discontinued and marketing at present is handled by each individual.

Historically, the growers in the Grand Rapids area have also contributed to the development of a profitable

hothouse tomato industry which had its beginning over 50 years ago. The red forcing tomato rather than the pink found favor from the beginning. Until the early thirties, a number of varieties including Grand Rapids Forcing, Comet, and Bonney Best were widely grown.

Michigan State Forcing was introduced in 1934 by the Michigan Agricultural Experiment Station. This satisfied a long standing need for a large red globe, disease-resistant tomato relatively productive in the dark winter and spring months. Since its introduction Michigan State Forcing has been continually selected by growers and many improved strains are now available.

Ed Yonkers examines seed crop of Washington Strain of Grand Rapids leaf lettuce. Once in two years selected plants are grown in the greenhouse for stock seed and samples sent West for increase.

The first commercially important F_1 tomato, Spartan Hybrid, was introduced in 1943 by Keith Barrons of the Michigan Agricultural Experiment Station. Spartan Hybrid, a cross of Michigan State Forcing and Cooper's Special, were found to be earlier, more productive, and more uniform than the then available strains of Michigan State Forcing. Continued selection of Michigan State Forcing has, however, in recent years resulted in strains equal to and even superior in performance to Spartan Hybrid.

John and Peter Gortsema are a good example of the ingenuity of growers in Grand Rapids. These two brothers, sons of John Gortsema, Sr., arrived in Grand Rapids in 1913 from the Netherlands. With their father's help, they constructed their first eight houses (one-half acre) in 1922. John and Peter now have two and one-half acres of the short-span Dietsch type greenhouses devoted exclusively to the production of lettuce and tomatoes. Following the introduction of the Spartan Hybrid tomato, the two brothers have been producing their own hybrid seed, frequently selling any surplus to their neighbors at cost.

In 1950 they crossed a vigorous strain of Michigan State Forcing producing medium fruit with the Ohio WR-3 Pink Globe. The performance of the new F_1 hybrid was encouraging. Each succeeding year the amount of seed and use of the hybrid has increased. At present a number of growers, including the Gortsema Brothers, are producing it exclusively.

Because of the greater disease resistance, productivity, uniformity, and firmness of the fruit, this new F_1 hybrid has been described and given the name of Michigan-Ohio Hybrid. Either as a fall or spring crop it has an excellent record and has outyielded its two highly regarded parents.

Left—Peter (left) and John Gortsema in one of their greenhouse ranges, preparatory to setting a tomato crop. Right—The new Michigan-Ohio F_1 Hybrid tomato developed by John and Peter.

With a spring crop of 8,000 plants per acre in 1953, the Gortsema Brothers realized a yield of nine to ten pounds per plant and an average return for the entire marketing season (May 15 to August 15) of 30 cents a pound.

Typical greenhouse operations for the season begin in late August or early September when the soil is steam sterilized by means of underground perforated tile. Two hundred yards of well rotted manure per acre is then applied, and thoroughly worked into the soil with a rotary tiller. Lettuce is grown in the fall and early winter with a few growers occasionally producing some radishes.

Tomatoes for the spring crop are seeded during the last week of December, with later seedings continuing through January. The plants are set into the ground beds during March and April. Prior to plant setting 1,000 to 1,500 pounds of 0-20-20 fertilizer are worked into the soil by rotary tilling. Lettuce is frequently grown as an intercrop when the tomato plants are small, but many growers have discontinued the practice as being unsound since night temperatures should not fall below 60° F. even when the tomato plants are small.

Harvesting the tomato crop begins in May and continues till August. The fruit is picked vine ripe and packed into eight-pound paper containers with two layers and a divider between. Marketing is largely in the Grand Rapids area. Through truckers, commission houses, chain stores, and a few retailers, the fruit is distributed into all parts of western, central, and northern Michigan. Ninety-five per cent of the hothouse tomatoes and much of the leaf lettuce is sold and consumed in Michigan. THE END

LOUISIANA'S Sweetpotato Program

Whirlwind progress in breeding new varieties and energetic promotion of a high quality crop are focusing attention on this important food and feed crop

By JULIAN C. MILLER

Louisiana Experiment Station

Dr. Julian C. Miller (foreground) and Dr. J. J. Mikell making sweetpotato crosses in the field.

AT THE time of the discovery of America by Columbus the Indians were already growing many varieties of sweetpotatoes in the West Indies and Central America, which at the present time all evidence indicates is the natural home of this crop. This was one of the foods presented to Columbus when he made his first contact with the natives of the West Indies. In Peru yellow and white varieties had already been classified and given names. If the sweetpotato was not already being grown on the North American continent, it was brought here by the early settlers. Any improvement in the crop thereafter was probably the result of bud sports or mutations. It was mentioned as being grown in Virginia in 1648 and again mentioned by Thomas Jefferson in 1781.

The sweetpotato has been one of the most important food crops grown in the South, and it has played an important part in feeding the population. Before the general use of the Irish potato, the sweetpotato was more important as a food crop in the South due to the fact that, as in the tropics today, the white sweet potato as well as the yellow-flesh varieties is used extensively as human food.

The present sweet potato improvement program began with the development and release of Unit I Porto Rico. This work was started in the fall of 1929 when seven strains of Porto Rico were selected. From the best five strains, 16,000 individual hills were selected in 1930 for further study. After keeping these potatoes in storage throughout the winter, only 500 of the best hills were saved for further increase and with only one potato from each hill. Comparative studies as to color of skin and flesh as well as yielding ability were made, and by 1934 the Unit I Porto Rico was released as the best selection out of this entire group.

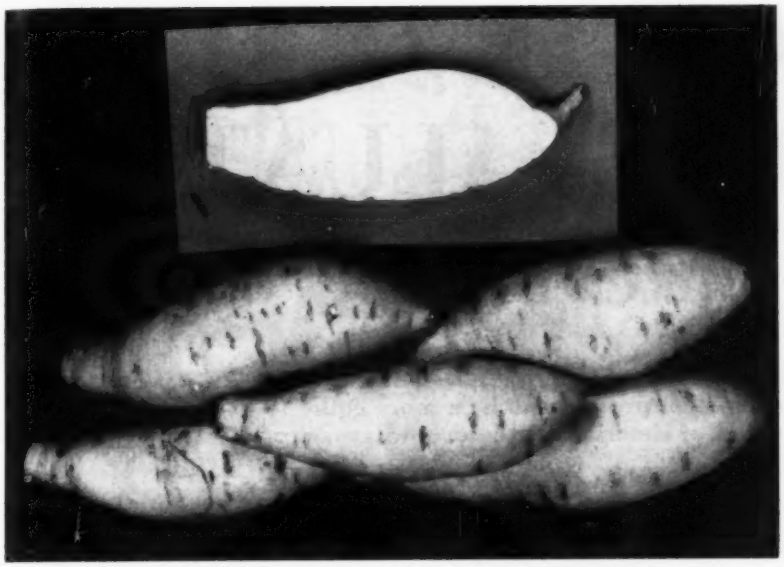
As we made selections, the better stock seed was turned over to the Louisiana growers for increase. Over three carloads of Unit I Porto Rico were grown and distributed in Louisiana in 1934. Each year better selections were also given to 4-H Club boys for increase. This was done particularly with the better selection, Unit I.

The year 1934 might be considered the beginning of the increase in the production of quality sweetpotatoes, both by the growers and the certified seed growers. Each year thereafter the experiment station maintained foundation stock seed of Unit I, and it is now considered the leading strain of Porto Rico in Louisiana and in many other areas.

In 1937 we began to develop true seed, and this was the beginning of a breeding program in the United States. We also started to bring in true seed from other areas of the world. This breeding program created a great deal of interest throughout the other southern states, with the result that an effort was made to develop a regional breeding program. Through the Louisiana delegation to Congress, an appropriation of $32,000 was obtained in June, 1939, to develop a co-ordinated sweetpotato improvement program. The individual states working as a co-ordinated unit with the federal workers developed the organization now known as the Regional Sweetpotato Improvement Program.

As a result of the co-ordinated breeding program, the following new varieties have been released by the Louisiana Agricultural Experiment Station:

Pelican Processor. This is a starch and industrial variety. It is a seedling of a Cuban variety known as Americano, which has proved to be one of the best industrial-type potatoes. It has a total solids content of about 40 per cent and the starch content varies from 26



Unit I Porto Rico, Louisiana's standard table stock sweetpotato.

to 32 per cent. Over a period of years it has been one of the highest yielders in starch per acre. It is highly resistant to wilt disease.

Queen Mary. Of the table stock varieties the first of this type to be released under the co-operative breeding program was the Queen Mary. This variety has copper skin and deep yellow flesh, richer than that of Porto Rico. The north Louisiana hill growers in particular found this a very desirable variety, and some of the commercial growers in south Louisiana found it suitable for individual plantings. However, the Queen Mary has some defects, mainly, it develops veins under certain conditions, and it is also susceptible to the wilt disease. While this variety is still being grown to some extent, it will probably be replaced by more recent introductions.

Ranger. The Ranger was first grown in Louisiana in 1939. It has a tan skin and a carotene content in most sections equal to that of Porto Rico. It was due to its high yielding ability in the northern sweetpotato producing area that instigated a demand for the release of this variety. It is being grown by the Campbell Soup Company and it has found ready acceptance in areas even farther north than where the Jersey variety will produce satisfactorily. Yields have been reported as high as 300 bushels per acre in Canada, and other exceptional yields have been reported in Wisconsin and New York. Under Louisiana conditions it is somewhat irregular like the Nancy Hall, and due to its tan color, the Louisiana station does not recommend it as a commercial variety in the lower South.

Heartogold. This variety was released three years ago and has been grown for the early market, for home use, and for canning. It is not recommended for commercial planting due to its light skin color. It is one of the very highest yielding varieties ever produced. It is moderately resistant to soil rot and is very resistant to excess water damage. It has a deep orange interior color and a flesh-colored skin. This variety is being grown by many of our certified seed growers for home use and canning.

Goldrush. This is probably one of the best all-round sweetpotatoes that has ever been produced when all factors are considered. The variety produces very satisfactory yields of very uniform potatoes, however, it is slightly later than Unit I Porto Rico. Goldrush is twice as yellow as Unit I Porto Rico, and it is resistant to wilt, one of our major sweetpotato diseases. Due to its high table quality and uniform shape and size, it has proven to be one of the best canning potatoes ever tested.

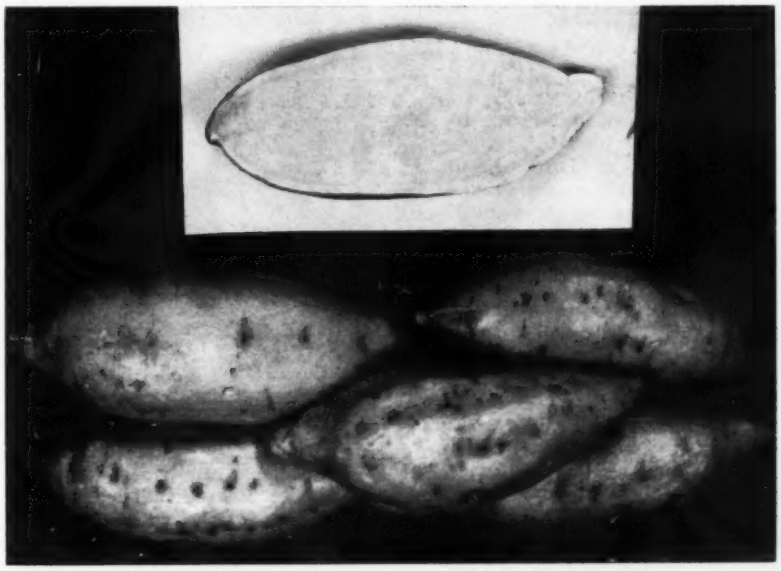
The Goldrush has a better interior than the Queen Mary, and since the Goldrush is resistant to wilt, it will probably replace many of the other varieties, such as Queen Mary and even Porto Rico, in the pineland area of north Louisiana and in many other areas in the South where wilt is a serious problem.

Earlyport. This variety is adapted for early market production. It matures early and should be harvested at the end of 90 days from time of planting. It has a copper colored skin and a deep orange flesh color. It is the earliest, highest yielding selection of the Porto Rico type. This variety should not be grown much beyond 90 days because the potatoes will become of jumbo size. It has been found to be a good canner and holds its shape well in the can.

Other state stations and the USDA have released many varieties as the result of the program, among which are the Whitestar, Allgold, Virginian, Australian Canner, Georgia Bunch, Texas Bunch or Murff Bunch, Red Nancy, Orlis, Rols, and Sunnyside.

Not only does the Louisiana station breed and develop new varieties, but it also produces foundation seed stock of the new and standard varieties to the extent of 2,000 bushels a year for

(*Continued on page 20*)



Goldrush is wilt-resistant; has twice the carotene of Unit I Porto Rico.

The Problem of COLOR EVALUATION in Cannery Tomatoes

Purdue Experiment Station's new unit color and defect system promises to be a more equitable method of determining color and grade

By N. W. DESROSIER
Purdue University

COLOR is nature's method of indicating prime eating quality in many natural foods, and is an important factor in the standards for quality promulgated by the USDA for many food products. Visual grading of food for color is dependent upon the grader's ability to perceive color differences, and his judgment of the equivalence of the color of the product to the grade requirement in question. This ability is subject to fatigue, and is influenced by working conditions.

It is important that the color line for grade divisions for tomatoes be fixed or stable, for instance, in the marketing of 400,000 tons of tomatoes through about 100 inspectors in Indiana. A term such as "90 per cent good red color", the minimum requirements of the U. S. No. 1 grade for cannery tomatoes, must have the same interpretation by inspectors in different parts of the tomato growing regions, from day to day, month to month, and year to year.

There is a need in our industry for objective, easily operated, color grading instruments to assist inspectors in stabilizing color lines or grade divisions. Tomatoes for processing generally are purchased on a graded basis, because this has been demonstrated by canner and grower experience to give better returns to both grower and canner. Factors other than color in the U. S. grades for tomatoes are listed specifically in the grade specifications, but interpretation of the minimum color requirements for the grades may be controversial.

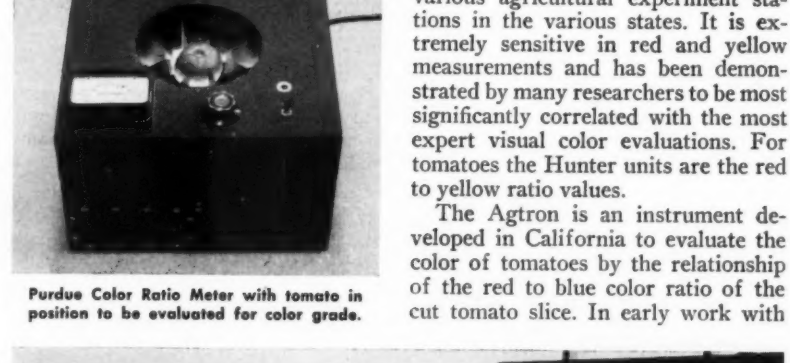
Within the past three years a number of instruments have been available which measure the color quality of tomatoes. These instruments have been designed to measure the surface or skin color, the cut slice color, or the juice color of individual tomatoes.

Purdue Color Ratio Meter with tomato in position to be evaluated for color grade.

The three instruments of interest to the tomato grower are the Hunter Color and Color Difference Meter, the Agtron, and the Purdue Color Ratio Meter. The Hunter meter is the most sensitive instrument and has been widely employed in research in the various agricultural experiment stations in the various states. It is extremely sensitive in red and yellow measurements and has been demonstrated by many researchers to be most significantly correlated with the most expert visual color evaluations. For tomatoes the Hunter units are the red to yellow ratio values.

The Agtron is an instrument developed in California to evaluate the color of tomatoes by the relationship of the red to blue color ratio of the cut tomato slice. In early work with the Agtron, one-half of the tomato was employed for color evaluation, but it was found that the cut slices of the two halves were not identical, so both slices are now used to obtain a reading.

(*Continued on page 19*)



Tomatoes for processing must meet grade standards but color is a controversial one.

STATE NEWS

• Kern County Growers Disturbed Over Cotton Acreage Diversion
• New Spray Controls Storage Sprouting of Potatoes and Onions

CALIFORNIA—Kern County vegetable growers are vitally concerned about plans for next season which must take into consideration the acreage which the proposed cotton program will take out of cotton production. Under present law, approximately 148,000 acres will be diverted to other crops in Kern County.—*David N. Wright, Farm Advisor, Bakersfield.*

FLORIDA—The effects of the prolonged rainy period experienced in Florida are now showing up in decreased out-of-state shipments. Volume of all principal crops harvested in October was considerably less than last year. Reduced volume is expected to continue during most of November.

New president of the Florida State Horticultural Society for 1954 is M. U. (Red) Mounts, Palm Beach County Agent. M. C. Jorgensen, a member of the Ruskin Vegetable Co-operative, was elected vice-president of the vegetable section of the society.

Indian River County growers lost a good friend in the passing of Marcel A. Boudet, who had been an outstanding county agent for the past 10 years. His sudden death created much sorrow among his many friends. —*George Talbott, FFVA, Orlando.*

WISCONSIN—There is an increasing interest among Wisconsin potato growers in producing the Russet Burbank variety. Over 5,000 acres were grown in Wisconsin in 1952 and close to 10,000 in 1953. Market preference, reflected both in terms of higher prices and better demand, has stimulated Wisconsin producers to grow more Burbanks. This is a variety long recognized by housewives as having excellent table quality.

Early attempts to grow this variety in Wisconsin met with limited success. The Russet Burbank requires very exacting cultural conditions for maximum yields and quality. The principal problem is its tendency to produce undersize and misshapen tubers. Irrigated sands and sandy loams or well-drained mucks are preferred for Burbank production. Light soils, without irrigation, or heavy mineral soils are not recommended.

On light soils irrigation water must be applied carefully and uniformly to insure good yields of well-shaped tubers. In addition, proper soil management and preparation, adequate fertility, use of blocky, full one and one-half-ounce seed pieces, from certified seed, spacing approximately 18 inches apart in the row, a soil reaction of pH 6.0-6.5, and a thorough and timely spray program are also required for success in Wisconsin.

A yield of 500 or more bushels per acre running 85 per cent or more number ones is considered good under Wisconsin conditions.

Many successful growers are now using a regular three-year oats-red clover-potato rotation for Burbanks. The red clover sod is plowed up and thoroughly worked several times in late summer of the year preceding the potato crop. Recent research has indicated that for sandy soils 1,000 to 1,500 pounds of 6-6-18 or 6-6-18M broadcast and disked in before planting and 500 pounds of 5-20-20 in the row provide for adequate fertility. In addition a sidedressing of 100 to 150 pounds of ammonium nitrate is usually needed when the plants are about eight inches tall.

A soil reaction of pH 6.0-6.5 provides for better growth, higher yields, better tuber size and shape, and somewhat better cooking quality. The usual low pH range of 4.9-5.4 required to control scab when growing ordinary varieties is not required since the Russet Burbank carries tolerance against common potato scab. Because of its high susceptibility to late blight, however, growers are encouraged to carry on a thorough and timely spray program.

Growers are also encouraged to harvest, handle, and package this variety with extra care. Wisconsin-grown Russet Burbanks, properly graded, sized, packaged and labeled are presently commanding top prices in competitive midwestern markets.—*John A. Schoenemann, Ext. Veg. Crops Spec., Univ. of Wis., Madison 6.*

BLUE GOOSE MERGED

American Fruit Growers Inc., the widely known marketing organization has been merged with American National Foods, Inc., and will operate from now on as American National Foods. For some time the latter organization has been handling the terminal marketing for American Fruit Growers whose Blue Goose brand is one of the best known in the industry.

American National Foods is a marketing organization owned by growers, shippers, and co-operatives who use its services. J. D. Kerr, AFG president, expects to be able to provide, because of the merger, even greater service for growers and shippers.

On the board of directors of the new organization are several prominent vegetable men including: J. D. Kerr, Los Angeles; E. L. Barnhill, Wenatchee; L. L. Branthoover, Idaho Falls; C. C. Hoisington, Palisade, Colo.; W. E. Stough, Galion, Ohio; J. H. West, Perry, Ohio; L. L. Chandler, Goulds, Fla.; N. L. Allen, New York; H. E. Bryant, New Bedford, Mass.; and F. W. Hussey, Presque Isle, Maine.

NEW MEXICO—Sprouting of stored potatoes and onions can now be controlled with a chemical that is sprayed on the vegetables before they are harvested. The chemical is MH-40 and it contains a growth regulator. It has been approved by the USDA after four years of testing.

Sweet Spanish onions have been stored as long as eight months without sprouting after treatment. High-quality hybrid onions have had several months added to their storage life by spraying. Potatoes, which sprout quickly when stored above 40° to 45°, will not sprout for as long as 12 months at 55° after treatment. Potatoes should not be sprayed, however, if they are to be used for seed.—*L. C. Gibbs, Ext. Hort., New Mexico A & M College, State College.*

MICHIGAN—The story of Lyle Jordan, Jackson, and his new air-conditioned onion storage appeared in the November '53 issue of *Electricity on the Farm,* which is distributed by Consumers Power Company.

An event of importance to growers is the coming Farmers' Week at East Lansing, to be held February 1-7, 1954.—*Howard Trapp, Sec'y, Mich. Celery Promotion Assn., Inc., Beulah.*

TEXAS—Rio-Gold is the name of a new disease-resistant cantaloupe developed at the Lower Rio Grande Valley Experiment Station. Trial plantings in various localities in Texas brought favorable responses on the attractiveness of the fruit in appearance and eating quality. Only limited quantities of seed are available to seedsmen.

GEORGIA—A handsome, well illustrated bulletin on vegetable gardening has been prepared by Raymond Sheldrake, Jr., assistant horticulturist. The bulletin contains true-to-life colored photos of some of the more common vegetable insect enemies. It may be obtained from the Extension Service, College of Agriculture, University of Georgia, Athens.

OREGON—The need for mechanization was emphasized in the vegetable section report of the 1952 economic planning conference. Conclusions were that there seems to be no alternative to the development of machinery to do nearly all the jobs for which we now depend on seasonal farm labor to perform. Also, that with the continuing long-time trend of American families to leave the farm, and the probable acceleration of this trend in the years ahead, more and more thought must be given to the mechanization of agriculture from the points of view of all phases of the industry: plant breeding, producing, processing, transportation, marketing, etc.

MAINE—Two important potato marketing points were brought out in a recent study. They were that housewives like to buy potatoes bagged in printed polyethelene, and that they overwhelmingly prefer potatoes that have been cleaned and washed.

(Continued on page 14)

CALENDAR OF COMING MEETINGS & EXHIBITS

Nov. 30-Dec. 4—Vegetable Growers Association of America annual convention. Chase Hotel, St. Louis, Mo. Convention exhibits and arrangements: Dr. H. D. Brown, VGAA Sec'y, Ohio State University, Columbus 10, Ohio. Publicity: Max Chambers, Preston, Md.

Dec. 4—Michigan Celery Promotion Assn. annual meeting, City Hall, Zeeland, Mich.—Howard Trapp, Sec'y-Treas., Beulah, Mich.

Dec. 6-12—National Junior Vegetable Growers Assn. annual convention, Tulsa, Okla. Write Prof. Grant Snyder, Univ. of Mass., Amherst, for data.

Dec. 9—Wisconsin Potato Growers' Assn., Inc., annual meeting Antigo, Wis.—Harold R. Simons, Exec. Sec'y, Antigo.

Dec. 10-11—Georgia Canners Assn. annual meeting, Biltmore Hotel, Atlanta.—Raymond Sheldrake, Jr., Asst. Ext. Hort., Athens.

Dec. 10-11—Iowa State Vegetable Growers' Association 40th annual convention, Hotel Hanford, Mason City, Iowa—C. L. Fitch, Sec'y-Treas., Ames.

Dec. 15—Southern Minnesota Vegetable Growers Assn., Armory, Albert Lea, Minn.—Juel Nelson, Sec'y-Treas., Albert Lea.

Jan. 8-9, 1954—Connecticut Vegetable Growers Assn. annual meeting, Hotel Stratfield, Bridgeport.—E. C. Minnum, Ext. Vegetable Specialist, Storrs.

Feb. 1-3, 1954—39th annual meeting Ohio Vegetable and Potato Growers Association, Commodore Perry Hotel, Toledo—E. C. Wittmeyer, Ohio State Univ., Columbus 10.

Feb. 4-5, 1954—University of Wisconsin Farm and Home Week vegetable crops program in conjunction with Wisconsin Muck Farmers' Assn. annual meeting, University of Wisconsin, Madison. —O. B. Combs, Sec'y, Madison 6.

Feb. 18-20—Watermelon Growers and Distributors Assn., Shamrock Hotel, Houston, Tex.—J. J. Parrish, Sec'y-Treas., Adel, Ga.

STATE NEWS

(*Continued from page 13*)

The studies were made at Boston and Worcester, Mass., and in Bangor, Me. The bags were produced by Nashua, N. H., from film supplied by Olin Industries, Inc. Further details are available from the University of Maine Agricultural Experiment Station, Orono.

OHIO—A yield of 500 bushels of potatoes per acre has been achieved by Lebert Evans on his 500 acres near New Carlisle. When he began growing potatoes in the '20s, a yield of 200 bushels was considered good, he says. However, now he applies all the latest methods of spraying, tilling, irrigation, and storage to bring in a crop of almost a quarter of a million bushels.

RHODE ISLAND—Improved Spancross and Gold Mine were found to be the earliest maturing of 15 varieties of corn studied in the Northeastern Co-operative Sweet Corn Trials for 1952 at the Rhode Island Experiment Station at Kingston. Improved Spancross required 71 days, and Gold Mine, 73.

Seneca 60 was the runnerup, maturing in 74 days. North Star and Sun Up each required 75 days. Maturing intermediate between early and midseason were Seneca Dawn, Marcross, Patrick Henry, Earligold, Washington, and Golden Jewel. At midseason maturity (80 to 82 days) were the two Carmel crosses and Seneca Arrow, according to Dr. D. D. Dolan, experiment station horticulturist.

PREPEELED POTATOES

Some problems remain to be solved but outlook is good

WITH THE success of topped carrots, washed spinach, and shelled peas, it seems very likely that the housewife would go for prepeeled potatoes. For years this idea has been nothing more than a gleam in the eye of many processors but recent technological advances have hastened the day when the housewife might buy prepeeled spuds at her supermarket for frying or mashing.

Real advances have been made with prepeeled potatoes for hotels and restaurants, reports USDA potato specialist Albert E. Mercker.

Prepeeled potatoes for commercial use are not new. In fact, they date back to the mid 30's and except for a setback during World War II, the trade that produces them has been a constantly expanding one. Conservatively, it is estimated that the prepeeling trade now uses close to two million bushels of potatoes annually.

First produced for the restaurant trade, they are now going to hotels and hospitals and other institutions. In fact, proposed U. S. standards for grades for prepeeled potatoes were issued on September 5, 1953, following industry requests for their establishment. There are prepeeling plants in nearly every metropolitan area of the country.

Advantages

Behind the growth of the prepeeled potato trade are some good economic facts. In a recent study made by Michigan State College in co-operation with the National Restaurant Association it was found that it costs considerably more per pound to hand peel potatoes in a restaurant than it does to do the job with an abrasive type mechanical peeler.

In a commercial pre-peeling plant this spread is greater since there are other economies in addition to less peeling waste. Even with mechanical equipment, potato losses in small-scale peeling operations can run as high as 40 per cent, as compared with 20 to 25 per cent in a commercial peeling plant.

R. H. Treadway and R. L. Olson respectively of the Eastern and Western Regional Research Laboratories, Bureau of Agricultural and Industrial Chemistry, USDA, have made a comprehensive study of the commercial pre-peeled potato trade. In a recent paper they pointed out that restaurateurs have found it good business to pay four to six cents a pound above the price of unpeeled potatoes for the prepeeled product, and they cite these reasons:

1 Savings in labor and cost of equipment.
2 Savings in storage space.
3 Reduction in garbage.
4 Availability of peeled potatoes, particularly French-fry slices.
5 Peeling loss is known since it is paid in advance.
6 The prepeeled product is of better quality than ordinary unpeeled potatoes.
7 Prices of the prepeeled product are more stable.

Three Major Types

There are three major types of peeling used at present in the commercial trade—steam, lye, and abrasion. Each has its advantages and disadvantages, and you can get an argument from the processors using them as to which is best.

Research, which probably would hasten the day when prepeeled potatoes could successfully be retailed, should cover: 1) The best type of packaging material; 2) consumer preference in package size or sizes; 3) the type of peeled potato most dsired; and 4) the price relationship and competition relative to other fresh and processed vegetables.

Other general questions to be answered are what the maximum and minimum sizes of an economical peeling plant should be and what area can be covered in servicing wholesale customers by truck. THE END

MICHIGAN IS LEADING NAVY BEAN STATE

MICHIGAN bean growers have a champion in Representative Elford A. Cederberg who is serving his first term in Congress. He inserted an article in the *Congressional Record* pointing out that Michigan is the Beanpot of the world. Eighty years ago the first farmer planted beans in Michigan and today the bean crop is Michigan's number one cash crop, bringing in some $35 million a year to the bean producer.

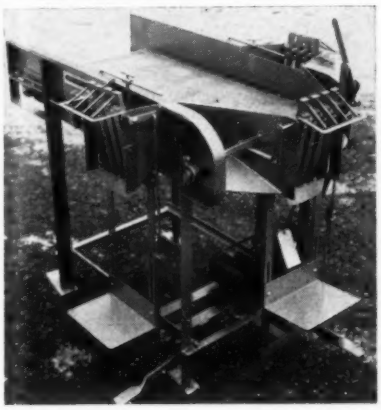
Representative Cederberg wrote, "Boston may have made baked beans famous, but 20,000 Michigan bean growers supply the raw product to the world, producing between 92 and 96 per cent of all the navy beans grown in the United States."

This year's crop totaled 3,910,000 one-hundred-pound bags. Only three other Michigan crops exceed the navy bean in total value. They are corn, wheat, and oats.

NEW FOR YOU

—to increase your profits

Bagging Efficiency



The Troyer packaging unit is designed to bag 10-, 15-, 50-, or 100-pound bags or any combination of these and at the same time if desired. The unit is 20 inches wide. Independent fingers in the gates prevent potatoes from bypassing when one finger is held open. Proficient operators bag potatoes to almost exact weight. For fast, efficient, and easy handling of your bagging problem, why not write A. J. Troyer, Troyer Mfg. Co., Smithville, Ohio?

Profit Stretchers

When bunching or prepackaging vegetables, you will need a large supply of rubber bands. Alliance rubber bands come in different sizes and colors, and they are ideal for packaging vegetables. If you are looking for a large supply of rubber bands at a low cost and would like to have an interesting booklet describing their thousands of uses, write F. W. Happ, Alliance Rubber Company, Hot Springs, Ark.

"See-Safe"

Many vegetable growers are increasing their profits by using the "See-Safe" polyethylene bags for prepackaging their vegetables. They are inexpensive and have proven themselves of value in supermarkets and over-the-counter sales. You can order these polyethylene bags in a variety of colors, and your name and address can be imprinted for only a slight extra cost. If you are considering prepackaging, we suggest that you write Mehl Manufacturing Co., 25057 Reading Rd., Cincinnati 2, Ohio for their attractive booklet and also a sample of their "See-Safe" bag.

Rotary Hoe

Vegetable growers will be interested in the Friday rotary hoe which is powered by a Wisconsin seven and one-half horsepower engine. It has a rotary tiller which stirs the soil around the plant, and when the tiller comes to a plant or fence post a trigger which operates the hydraulic mechanism pulls the cultivating head away and around the plant. It is possible to govern the depth of cultivation, depending on whether the grower is cultivating a deep- or shallow-rooted plant. Why not write Friday Tractor Company, Hartford, Mich., for complete information on their rotary hoe?

Remarkable Job

Many growers would like to process their vegetables in a limited way. However, much of the equipment on the market today is large and costly. The Sweden juicer may be what you have been looking for. Fresh vegetable juices can be made easily and quickly with this juicer. Sturdily designed to meet all the specifications of the Federal Food, Drug, and Cosmetic Act, this little juicer does a remarkable job. For full information and specifications, we suggest you write Sweden Freezer Manufacturing Co., 3401 17th Ave., West, Seattle 99, Wash.

Max-Min

Many vegetable growers have found that one way to eliminate the grief suffered from frost damage is to have a Taylor maximum-minimum thermometer. It is extremely accurate yet is inexpensive. The Taylor thermometer predicts frost by telling highest and lowest temperatures since the last setting plus the temperature now. Tiny steel-cored indicators inside the tube stay put until reset with a magnet. Every grower should have one, and if you would like to have full details, write W. W. Lockwood, Taylor Instrument Co., Rochester 1, N. Y.

Johnson's Sprout-Inhibitor

COLORFRESH

checks sprouting, reduces shrinkage, keeps that fresh-dug look.

Sprouted potatoes don't sell. And here's the *only* wax that definitely retards sprouting throughout the marketing period—Johnson's Sprout-Inhibitor Colorfresh.

What's more, Sprout-Inhibitor Colorfresh gives you two *additional* profit-making advantages: reduces shrinkage . . . and maintains the fresh-dug appearance of your potatoes.

Sprout-Inhibitor Colorfresh is easy to apply to all varieties of potatoes. Get the facts from your local Johnson's Wax distributor. Or write today to:

S. C. JOHNSON & SON, INC.
Agricultural Wax Products, Racine, Wisconsin, Dept. AVG-11

A product of
JOHNSON'S WAX
Research

THE ENTERPRISE

(*Continued from page 5*)

—and plenty of it. But as Scheffer points out: Until you have a management organization that is really clicking, the operation is not at all practical.

For farm labor, Seabrook Farms draw on the following main sources:

1) Year-around help (managers, assistants, mechanics, tractor drivers, and the like) are recruited from local farmers' sons and farm hands—many of them are on the farm for the third generation.

2) Seasonal skilled help is recruited from Florida vegetable areas where the work is slack in the summer.

3) Migrant stoop labor comes from two main sources—the Florida domestic migrant pool and offshore labor (British West Indies, and Puerto Rico to a lesser degree). No Mexicans or Filipinos are employed —mainly to keep the language problem a little less involved.

"Home Grown" Management

Training and selection of future managers has high priority at Seabrook. They take farmers' sons only and start working them in high school at age 15. Summers are spent doing all the jobs at Seabrook. By the time they have been graduated from agricultural college they have developed into a pretty handy boy—if they had the stuff in them to begin with. After graduation from agricultural college, he is assigned as foreman or assistant manager to one of the divisions or to one of the service organizations (harvest, plant protection, soil conservation, irrigation, soils laboratory, climatology, or seed development).

As far as the professional farm manager is concerned, Scheffer believes that unless he is a skilled vegetable grower he would primarily fall in these fields: assistance with bookkeeping; tax accounting problems; and developing and maintaining incentive plans and cost accounting procedures.

Scheffer stresses that a lot can be done along these lines, however. He points to the many smaller operators —those operating up to two or three thousand acres. Beyond that, volume and organization are large enough for a full professional staff.

Work Simplification

The other big field on commercial vegetable farms, in Scheffer's opinion, is work simplification, methods study, and development of laborsaving devices. To be effective in this field, the man has to be a skilled vegetable grower with good ideas on industrial engineering and agricultural engineering in general. And Scheffer adds

that full knowledge of cost problems is necessary to evaluate all such efforts.

Claude Hormel concurs in the importance of developing "home grown" management. "I think it would be very difficult to go outside an organization of this kind to find someone well enough trained and with enough experience to take complete charge on short notice," he says. "I think most organizations follow our plan here at Hollandale of having a man or two in training within the organization all the time. The goal is to have them well-enough trained and with sufficient experience to take over in case of a vacancy at the top."

To do that, a business must be large enough to attract and hold a capable manager at the top and in addition be able to pay sufficient salary to second and third assistants to encourage them to stay on and work up as time passes. Hormel points out that sometimes men in such secondary capacity can find a top spot in some other organization—in which case they must be replaced in the parent organization.

Marketing—An Expert's Job

Agricultural economists always have been concerned with marketing. And no other factor is more critical to the vegetable grower than his marketing setup, both Hormel and Scheffer agree. But Scheffer regards marketing vegetables as a distinct field in itself. While a professional farm manager concerns himself a great deal with marketing his client's products such as corn, hogs, or cattle, Scheffer doubts whether anyone but a real expert and specialist should tackle the task of offering advisory service in vegetable marketing. THE END.

NEW FRIEND OWNERS

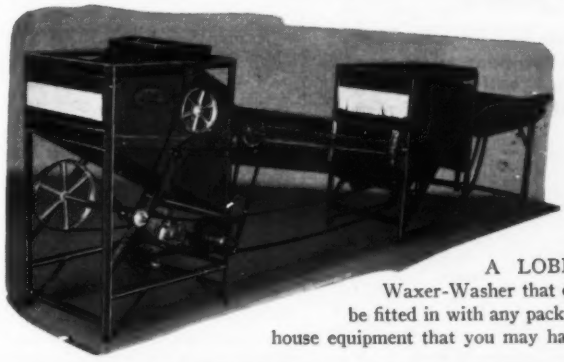
THE Friend Manufacturing Co., Inc., Gasport, N. Y., manufacturers of agricultural power spraying equipment, recently announced a change in ownership.

The manufacturing facilities have been expanded by the new owners and it is expected that new and improved models will be ready for introduction at the winter vegetable shows. Production in quantity is scheduled for early delivery in 1954.

Growers who already have Friend sprayers and equipment are also assured by the new owners of more prompt and efficient service because of the addition of the new machine tools and equipment.

Herbert P. Culp, formerly chief engineer and assistant manager, is now vice-president and general manager of the company, and Fred W. Ganshaw, Jr., has been appointed sales manager.

POTATO *and* VEGETABLE *Growers*



A LOBEE Waxer-Washer that can be fitted in with any packing house equipment that you may have.

BOOST YOUR SALES!

WASHED AND WAXED PRODUCE SELLS FASTER AND EASIER.

The waxed produce has far better eye appeal, and reaches the consumer in peak condition.

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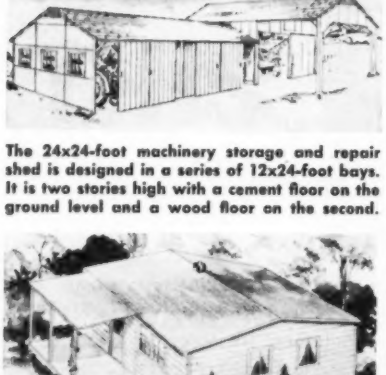
These three buildings are well designed, economical to construct, and will give many years of efficient service

This roadside market is designed to attract the customer's eye. There are two movable display racks in front of the market where the customer can stand under the shade of the overhanging roof.



The 24x24-foot machinery storage and repair shed is designed in a series of 12x24-foot bays. It is two stories high with a cement floor on the ground level and a wood floor on the second.

Basic tenant house can be built as a single or double unit. There are five different room arrangements, each containing a kitchen, two bedrooms, dining space, and a compact living room.

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Working drawings showing construction details are included with the following plans:

Roadside Market ..... $ .50
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THE NATURE OF NEMATODES

What are these tiny worms which cause so much damage? You will be hearing more about them so remember these facts.

NEMATODES are all about us—on land and on the sea. A single acre of cultivated soil may contain hundreds of millions and they are just a little too small to be seen by the naked eye. Length of a full grown nematode may be less than one-sixty-fourth of an inch and seldom exceeds one-eighth inch.

Most nematodes living in the soil are harmless and some are even beneficial but several hundred species are parasites and cause a variety of plant diseases. Available information shows that all the plants grown in the world can be attacked by the harmful-type nematodes. However, each particular kind prefers certain plant species and will not attack other plants.

These interesting facts are from the Yearbook of Agriculture for 1953, *Plant Diseases*. Considerable information about nematodes is given which reveals new knowledge about these old killers.

Multiply Rapidly

The nematodes are prolific reproducers and can multiply in several days. Nematodes in northern regions are not disturbed by cold winter weather, and some are not harmed by drying out. For instance, the wheat nematode has been revived after dry storage for 28 years.

By their own efforts nematodes spread very slowly. If they move a foot or two from the spot where they were hatched they are doing well. They like the underground portions of plants, but will also attack stems, leaves, and flowers.

Nature has equipped most nematodes with a tiny stylet or spear like a hypodermic needle. The plant cell is pierced with this needle and the juices sucked out. Nematodes may even inject a digestive secretion into the cell so when the contents are taken the food is partly digested and liquified.

Extent of Damage

The extent of damage caused by parasitic-type nematodes is hard to estimate. Some observers feel that they may cause considerable hidden r masked damage in the form of lowered vigor and decreased yields—troubles normally attributed to declining soil fertility or a succession of unfavorable growing seasons.

The general appearance of a crop heavily attacked gives the impression of a lack of fertilizer or water. Since nematodes are seldom evenly distributed, growth of plants is uneven and patches of stunted plants appear here and there.

Damage caused by nematodes includes root knots, root lesions, reduced root system, or deformed stems and leaves. Strangely enough, on potatoes one of the first symptoms of a light attack by the golden nematode is a stimulation to better growth for a short time caused by the root pruning action.

Control

Control can be accomplished by crop rotation or by sterilization and soil fumigation. Four soil fumigants in general use are chloropicrin and mixtures which contain methyl bromide, chlorobromopropene, ethylene dibromide or dichloropropene. All of the fumigants will harm plants and must be applied in advance of planting. Least expensive fumigants are ethylene dibromide and dichloropropene. Average cost of moderate applications is from $35 to $40 an acre.

THE END

NEW PEPPER VARIETY IS HIGH YIELDER

A NEW, high-yielding sweet pepper variety, especially suited for home and commercial production in northern areas, has been produced at the University of Wisconsin. Seed will be available for commercial production in the spring of 1954. Plants of the new early pepper which has been named Wisconsin Lakes, are 18 to 21 inches tall, compact, and well-branched with ample coverage to prevent pepper sunscald. The fruit is upright, medium to large, stocky, thick-fleshed and dark green, ripening to a bright scarlet.

Another new development from Wisconsin is the news that Blue lupine may soon become a crop for potato rotation. The legume is being tested as a green manure crop on potato fields, and specialists believe it may prove to be better in the potato rotation than the present red clover. It produces a good crop of dry tops, and sweet blue lupine on Omega sand has produced as much as 148 pounds of nitrogen per acre. This was better production than red clover gave in previous tests.

COLOR EVALUATION

(*Continued from page 12*)

The Purdue Color Ratio Meter was developed at Purdue University to measure the red to yellow ratio of either whole, intact tomatoes as the grower, picker, and inspector sees the fruit, or of the juice.

Studies at the Purdue Experiment Station have been made with the Hunter meter, the most sensitive of the color instruments, attempting to relate surface color, cut slice color, and juice color of individual tomato samples as selected by experienced inspectors representing high and low U. S. No. 1, high and low U. S. No. 2, and cull tomatoes for color only.

In their studies, made during 1951, 1952, and 1953, several thousand samples were studied, and some 40 varieties were evaluated. Results of the studies indicated that, as anticipated of a human observer, the dividing line for tomato color grades varied from day to day, if evaluated on the Hunter meter by juice, surface, or cut slice color measurements.

It was also apparent that the most accurate estimate of a tomato's color quality was from the juice extracted from the tomato. Surface color and cut slice color evaluations only approximated the actual juice color of a tomato and occasionally were misleading. Surface color appeared to be as good or better an indicator of the raw juice color of a tomato than the cut slice color.

However, if either the surface or cut slice objective color measurements were employed, and a uniform color line were thusly maintained, the resulting juice color quality for the tomatoes of a given grade would have fluctuated less than was observed under the present system.

The Hunter instrument is a research tool, and does not lend itself easily to the job of simple grading. A simplified version of the Hunter meter has recently been developed and is called the Hunter Tomato Colorimeter. Some of the accuracy has been sacrificed of necessity, but it is still most sensitive and may find application to the grading problem.

The Agtron is now being employed in California, with satisfactory results. The Purdue meter has been employed locally and has been offered to the USDA for furtherance of the cause of improving grading practices. The Purdue meter not only measures tomato and tomato product color, but finds use in grading apples and other products as well.

In order to improve the present grading practices it is recommended that a gradual approach be made. It is felt that temporarily either the cut

(*Continued on page 21*)

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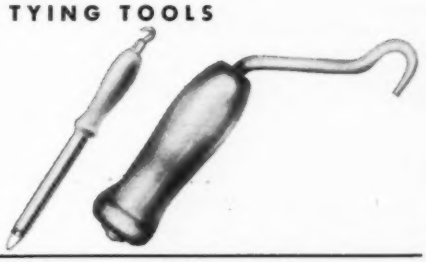

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- ☐ Household ..... 1 yr.
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- ☐ National Live Stock Producer . 2 yrs.
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- ☐ Poultry Tribune ..... 1 yr.
- ☐ True Love Stories ..... 6 mos.
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106 Euclid Ave. **AMERICAN VEGETABLE GROWER** Willoughby, Ohio

LOUISIANA PROGRAM

(*Continued from page 11*)

distribution to our certified seed growers and farmers, which is sold at a normal price. As a result of this station's constantly supplying the growers with seed, which is true to type, Louisiana shippers have been able to place the best quality of potatoes on the market. Today Louisiana ships around 70 per cent of the commercial sweetpotatoes sold in the United States. This past season we produced 9,943 cars of commercial potatoes. Of this amount 3,393 cars were canned locally and 6,550 cars were shipped as fresh stock.

Promotion Program

The Louisiana growers and shippers are doing an excellent job of producing and marketing. The growers have an active association which sponsors an advertising program, collecting two cents from each crate of potatoes for the purpose of advertising the "Louisiana Golden Yam."

Every crate of potatoes must show the grade and quality of potatoes on its bill of lading, and in the future we hope to do an even better job of sizing. At present the U.S. No. 1 grade is quite variable and it is contemplated separating the U.S. grade into three sizes—small, medium, and large. The average housewife prefers the medium size, Porto Rico type sweetpotato.

The new varieties, particularly the Goldrush and Earlyport, which are of the Porto Rico type, having a copper skin and deep orange flesh, have a definite place in the Louisiana sweetpotato program. As mentioned, the Goldrush is resistant to the fusarium wilt disease and also shows some resistance to the soil rot disease. It is an ideal canning potato and some of the Louisiana canners are going over entirely to this variety, as it is bright in color and has about twice the Vitamin A content of the Unit I Porto Rico. These factors alone make it more desirable for canning, while the Earlyport is about the same. We recommend the Earlyport for early harvesting as it produces about twice the yield of the Unit I Porto Rico when planted for early market.

Probably no other breeding program has made such progress in such a short period of time. The USDA and 15 other experiment stations throughout this country are co-operating to improve this important food and feed crop, resulting in the increased utilization of the sweetpotato. The introduction of these better varieties will greatly improve the diets of the people in this country, as well as in the food-deficient areas of the tropical, subtropical, and temperate areas of the world. THE END

CALIFORNIA'S LETTUCE INDUSTRY

(*Continued from page 7*)

than 30 minutes. The cartons are immediately transferred to cars in which the bunkers have been pre-iced, and only bunker ice is used during transit. Vacuum cooled lettuce is always loaded into cars equipped with fans. At Salinas the fans are not run by auxiliary motors after loading unless the cars are to be held overnight.

Two ice companies in Salinas and others in the state have recently installed precooling plants that accomplish the same thing as vacuum cooling. Their system reduces the air pressure in the tubes, which are square in this method, by a vacuum pump which operates on the tube air after the moisture has been removed from it. This is done by passing the air over refrigerated coils which eliminate the water vapor by freezing.

Since no ice is required in containers which are Vacuum Cooled and no top ice on the load is used, the less expensive paperboard containers have been substituted almost entirely for woodshook crates. Paper cartons have revolutionized harvesting methods. Lettuce which is to be shipped in these containers is packed in the field by the use of a loader-conveyor or by a method involving very little mechanical equipment. In both systems the cutting crew works ahead of the packing operation and turns the harvested heads butt up on the beds.

Three types of large loader-conveyor harvesters are used in the Salinas-Watsonville area. The packers ride the machines on two of the types and on the other they walk. These harvesters cover from 12 to 14 two-row beds in each sweep through a field.

The larger of the two packer-riding types packs a carlot an hour in a good field. The principal difference between the two types of large packer-riding loader-conveyer harvesters is that the assembling or "stitching" of the cartons is done on one of the machines and with the other the assembling is completed before the containers arrive in the field. The latter system is also used on the large packer-walking loader-conveyor harvester.

Small loader-conveyors which can accommodate four packers that ride the machines and which cover a maximum of about seven beds in each sweep through a field are also used in California.

The most common method of harvesting for the dry pack paperboard carton trade which includes very little mechanical equipment involves the use of low portable metal tables. The cutting crew precedes the packers who follow on foot with their portable tables which hold the carton as it is being packed. The purpose of the tables is to hold the cartons off the ground to prevent soiling and to facilitate packing. The filled cartons are usually loaded on trucks by hand. The assembling of empty cartons in this system of harvesting is usually done in the field by box stitchers mounted on trucks.

The vacuum cooling method and the dry pack paperboard carton which the former has brought into prominence have combined harvesting and packing into practically a single operation. Dry pack two dozen paper cartons sometimes bring higher prices on eastern markets than equivalent quantities in ice pack four dozen western woodshook crates. One of the principal advantages of paperboard cartons is their lighter weight, an important item in stores employing women. Also, the two dozen cartons facilitate distribution to the smaller retailer. THE END

COLOR EVALUATION

(*Continued from page 19*)

slice or the surface color measurement by instrument would improve the present grading practices by stabilizing inspectors in the various tomato areas from day to day and season to season. However, it is felt that the most adequate, positive, and equitable method for color evaluation of tomatoes is by juice color.

At the Purdue station we have been working on a system called "A Unit Color and Unit Defect System for Marketing Cannery Tomatoes." The value of a load is obtained by proper sampling and then evaluating color and defects in terms of their manufacturing value. Suppose tomatoes are worth, for example, $30 per ton for U. S. No. 1's, and $20 per ton for U. S. No. 2's then 90 per cent good red-colored tomatoes are worth $30 per ton, and 89 per cent good red colored tomatoes are worth $20 per ton.

It is felt that a more equitable method of marketing the tomatoes would be on a sliding scale basis. A load of tomatoes with 89 per cent good red colored tomatoes should be worth more than a load containing 66⅔ per cent good red-colored tomatoes.

Studies at this station during the past tomato season have demonstrated that the unit color and defect system can be handled in the same amount of time as that taken by an inspector to determine the grade of a load of tomatoes under the present USDA method. In addition, the interpretation would not be subject to fatigue or to working conditions.

THE END

Books for Your Home Library

DISEASES OF VEGETABLE CROPS *by John C. Walker.* The book thoroughly covers the diseases of such vegetables as asparagus, beans, celery, onions, etc. Each disease is discussed in regard to symptoms, cycle of development, and methods of control. It contains 629 pages and is well illustrated....$7.50

VEGETABLE CROPS *by Homer C. Thompson.* An up-to-date book which covers such subjects as plant nutrition, weed control, nutritional value of vegetables, recent advances in handling and marketing vegetables, cultivation, irrigation and storage. The book contains 611 pages and many illustrations. $6.75

THE TOMATO *by Paul Work.* Here is a practical treatise on the tomato which is for the amateur as well as the large commercial grower. It includes discussions on characteristics; methods of planting; fertilization; cultivation, points about harvesting, packing, storing and marketing; as well as insects and diseases which attack the tomato. This illustrated book contains 136 pages. $2.50

USING COMMERCIAL FERTILIZER *by McVickar.* Here is a book which gives information on what fertilizers should be used and how they should be used for most efficient production. $3.00

GARDEN SOILS *by Arthur B. Beaumont.* This book is written especially for the home gardener. The author has presented soil and plant science in simple language. A glossary of scientific terms can be found at the end of the book for the benefit of those unfamiliar with them. Illustrated, the book contains 280 pages. $4.00

AMERICAN TOMATO YEARBOOK *edited by John W. Carncross.* The new 1953 edition contains much information which is of interest to the tomato grower, dealer, and shipper—all those who are vitally interested in the tomato industry. It contains an up-to-date list of recent references to tomato culture and diseases and pests and their control plus helpful information on prepackaging, use of hormones, and grade requirements for canning and processing. Profusely illustrated, the book contains 40 pages. $2.00

Books sent postpaid on receipt of check or money order.

AMERICAN VEGETABLE GROWER

Reader Service Department

Willoughby, Ohio

American Vegetable Grower

EDITORIALS

Leadership

AS THE year draws to a close and we gaze out upon the distant horizon, we collect our thoughts, examine the high-spots and the low ones of our past, and then hope for all we are worth.

And just what are we worth? How do we measure human worth? When we say that a certain person is worth $5,000 or $10,000 a year to our business, have we placed a valuation on his entire worth?

Human worth, like friendship, is intangible, hard to describe in minute detail, and yet it is a characteristic which we cannot evade or overlook.

One of the criteria whereby we judge a man's worth is by his ability to lead others in activities, in thought, in deeds performed. Each vegetable grower can look upon himself as a leader and should feel it his responsibility to cultivate his aptitudes in leadership. He has employees, associates in his business; he deals with customers buying his products; and every day there are those who look to him for council and advice. To help assure success during his entire life this man must know how to live and work happily with such people. It is important.

A leader has followers, though we do not always recognize them as such. Let's look at leadership from his viewpoint. Just what does a follower of you, the leader, expect of you? We might suggest just a few things he is looking for in you.

1 He wants a leader who isn't afraid of any task, any circumstance, any person.
2 He wants a leader who believes in his work; who believes that his work and everybody in it are important.
3 He likes a leader who gets a kick out of his work, and helps him to do likewise.
4 He likes the leader who enjoys seeing him do a job he thought he couldn't do.
5 He wants his leader to fight for him when he is in the right.
6 He wants his leader to tell him off when he needs it, but without losing his temper.
7 He likes the leader who recognizes him as a person.
8 He wants his leader to be dependable, not giving one answer today and another tomorrow.
9 He wants his leader to understand him, to be able to talk with him when he seems about washed up.
10 He wants a leader who will bribe no one and is fair in all dealings.
11 He likes the leader who listens to him when he has something to say, but has something else to do when just trivialities are being discussed.
12 He wants a leader who sincerely believes in his worth and wants him to succeed.
13 He wants a leader who always respects his pride.
14 He wants his leader to show him the way, not just tell him about it.

The list could go on indefinitely, but it is sufficient to show how well we measure up in leadership, from the eyes of those looking to us for guidance.

Hail the Plant Quarantine Service

WE ARE bothered enough by insects and diseases without adding to their numbers, and for this thanks should go to the men who operate the Plant Quarantine Service. Federal plant quarantines have been in effect since 1912, and it is impossible to calculate how many new pest troubles have been prevented because of the keen eye of the inspector.

One of the most serious pests in other parts of the world is the golden nematode. It is a plague to potato growers in the British Isles, Germany, Denmark, and Sweden. Recently it has invaded Holland, Belgium, France, and Austria. Already it is knocking on the door of the U. S. and has been located on Long Island.

In England it has been found that in badly infested fields potato yields go down and down. Finally there is a complete crop failure. Crop rotation with potatoes grown one year in four is one method of control. Soil fumigation has given varying results. Breeding of varieties resistant to the golden nematode is underway but new varieties are not expected for several years.

With this as background, consider for a moment a large shipment of lily-of-the-valley pips which arrived on the docks at New York in 1950 from Hamburg, Germany. The roots carried some sandy soil and a vigilant inspector ordered the plants cleaned since soil often carries disease organisms.

At the Hoboken Inspection House a trained pathologist examined the soil under a microscope and caught the invader in the act. He saw a smooth, dark red, spherical body with a short neck floating around in the debris. The whole object was less than one millimeter in diameter. Here was a truly dangerous immigrant—the cyst of the golden nematode filled with living eggs.

Further search revealed the soil was contaminated with hundreds of cysts, each containing 10 to 100 eggs. This one shipment could have served to spread the nematode into many states, quite possibly into all potato producing areas. Sooner or later every potato grower would be affected.

That this tragedy did not occur is a testimonial to plant quarantine inspectors. Plant disease invaders are always searching for an opening and only eternal vigilance will stop them.

Some Notes on Population

FOR food producers, population increases mean stronger demands for their products. The human stomach can hold only a certain amount of food, so if demand is to strengthen either the housewife must shift her tastes or there must be more consumers.

Fortunately, vegetable growers are in an age when vegetables rate high with Mrs. Consumer, and at the same time population is growing by leaps and bounds. By 1975 there will be close to 200 million people in this country, according to the forecasters, compared to around 160 million in 1953.

Population figures are hard to comprehend, but the situation is brought closer to hand when we consider that every eight seconds there is a new birth, every 21 seconds a death, every 17 minutes an emigrant leaves this country, and every two minutes an immigrant enters.

There is a total net gain of one person every 12 seconds which means that roughly two million people are added to the population each year. By the time the reader finishes reading this editorial, considerable has taken place in terms of human lives.

The population growth we are now experiencing is a phenonemon of our times and deserves careful scrutiny to assess the changes it will make. One thing is sure. Demand for vegetables by baby food manufacturers should continue for a good long time.

S. H. Wittwer

A. N. Reath

VAUGHAN AWARD WINNERS

WINNERS of the Leonard H. Vaughan medal for the outstanding vegetable paper presented to the American Society for Horticultural Science were S. H. Wittwer of Michigan State College and A. N. Reath of Gerber Products Company, Fremont, Mich. Their paper was on the effect of temperature and extent of light on the development of pea varieties.

Their research uncovered new evidence which will be very usefull in evaluating the performance of new pea varieties in different growing areas as well as scheduling planting dates and predicting harvest periods.

The Vaughan award is made available by the Vaughan Seed Company of Chicago, Ill.

OLIGOMYCIN

IT HAS long been felt that antibiotics such as penicillin and streptomycin might be helpful in fighting such fungus diseases of plants as rots and rusts. However, to date only one antibiotic, actidione, for cherry leaf spot, has proven worth while. On the other hand bacteria diseases like halo blight seem to be yielding to antibiotics.

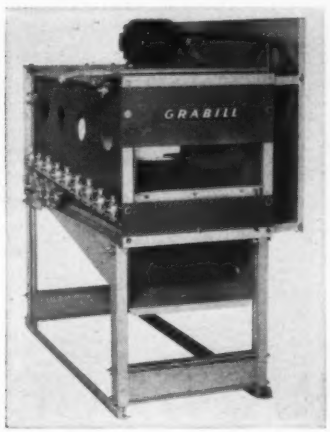
A newcomer on the scene seems to be effective against many plant disease fungi. The new antibiotic is called oligomycin and was discovered by University of Wisconsin scientists Elizabeth McCoy, W. H. Peterson, and Robert M. Smith.

Further tests are needed to learn more about the new antibiotic. In preliminary tests it has shown promise. For instance, one requirement for a good antibiotic to be used against soil-borne plant diseases is stability. Oligomycin does not lose its activity over a wide range of soil pH and temperature conditions.

It will be interesting to watch the progress of this newest of the antibiotics.

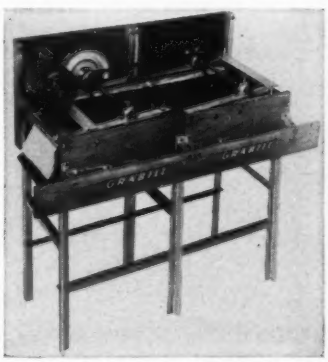
New John BEAN Cleaning-Waxing LINE features more models, lower costs

Clean, polished produce gets premium prices in any market. Heretofore, the equipment for washing, cleaning and waxing was not designed for small volume. Now! John Bean has expanded its line and offers equipment for all requirements. And John Bean has reduced prices on this equipment. Write for information on how you can make more profits with clean — polished produce.

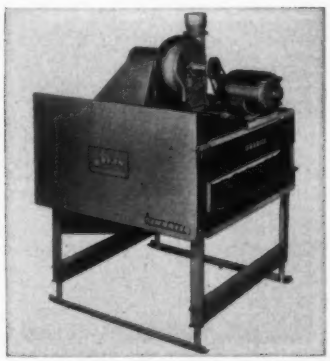


WASHER-ABSORBER. Units available with hair or rubber brushes. You can use them on tender produce or on potatoes. They work well in lines from 12" to 24" and come in models with from 100 to 175 bushels per hour capacity.

WAXER. Economical to buy and operate, this new waxer adds an exceptionally fine appearance to apples, peppers, cucumbers, tomatoes, and potatoes. Capacity 100 to 170 bushels per hour.

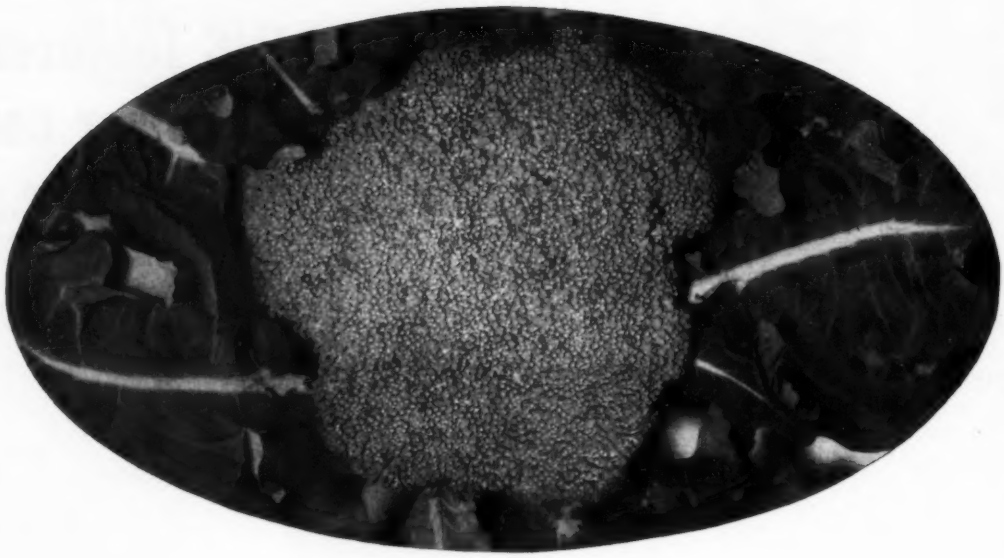


CUB BRUSHER. This series was designed specifically for the low-cost field. Used with the popular "Cub" grader, it enables the smaller grower to efficiently and economically clean his fruit and vegetables.



TWO-WAY CLEANER. Equipped with horsehair or rubber brushes, designed to clean from 60 to 420 bushels per hour. The soft cloth buffers can clean tender vegetables and fruit, or they can handle onions and potatoes.

fmc John BEAN DIVISION OF FOOD MACHINERY AND CHEMICAL CORPORATION
LANSING 4, MICH. • SAN JOSE, CALIF.



GRAND CENTRAL

A new Asgrow introduction, named for its large, solid, central head, of fine texture and color. Second early in maturity, followed by many sprouts.

Asgrow

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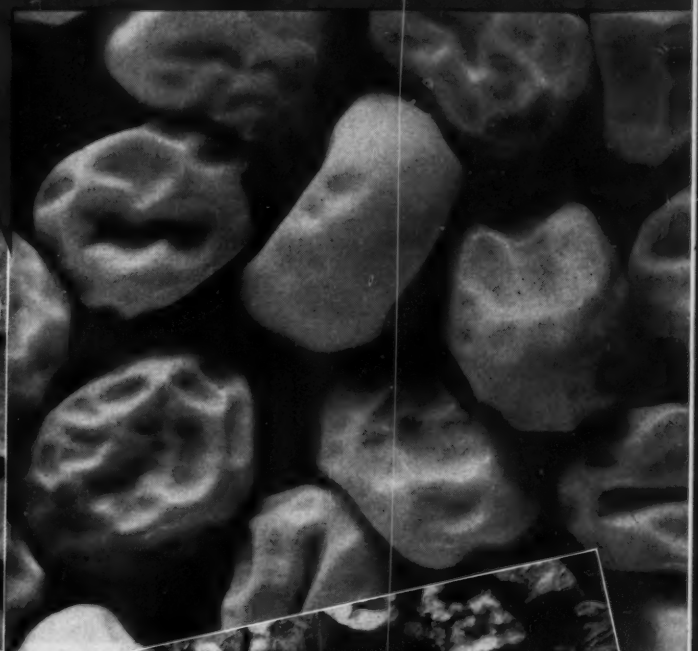
JANUARY • 1954

American Vegetable Grower



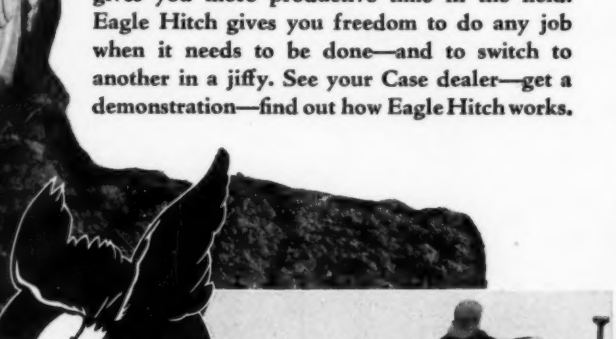
THE BEST SEED IS NO LUXURY—Page 6

It's QUICK Switch... with EAGLE HITCH

for the "100" Jobs of Growing Crops

Just think—in one minute you hook up to rear-mounted disk and moldboard plows, tandem and offset disk harrows, utility carrier, tool-bar and other implements—and you do it without getting off the tractor seat. It's just as quick and easy to drop one implement and switch to another. Eagle Hitch saves a lot of fuss and bother . . . reduces precious get-ready time . . . gives you more productive time in the field. Eagle Hitch gives you freedom to do any job when it needs to be done—and to switch to another in a jiffy. See your Case dealer—get a demonstration—find out how Eagle Hitch works.

New Low-Seat Eagle Hitch Tractor in the Case 2-plow "VA" Series gives you full crop clearance for cultivating up front or behind . . . Constant Hydraulic Control for raising, lowering, or adjusting implements . . . plus the comfort and convenience of close-to-the ground operation. Low, roomy platform is reached in one step from the side. Low Bodyguard® seat has torsional rubber suspension, sponge rubber cushion with waterproof cover.



Preparing seedbeds is a snap with this low-cost, low-seat tractor and Eagle Hitch Breakaway Pivot-Action plow, tandem disk harrow, and spike-tooth harrow as shown. Also mounts many other implements including disk plow, roller-packer, spring-tooth harrows, tool-bar for planters and tillage tools, utility carrier.

CASE

SEND FOR YOUR COPY!

Find out how all the exclusive advantages of Eagle Hitch Farming help you increase production and give you larger returns.

What is EAGLE HITCH Farming

Get pictorial catalogs, Mark here or write in margin any that interest you. J. I. Case Co., Dept. A-214, Racine, Wis.

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- ☐ Eagle Hitch Implements
- ☐ Breakaway Mounted Plows
- ☐ "Eagle Hitch Farming" Book

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W-96

LETTERS TO THE EDITOR

High Cost of Transportation

Dear Editor:

During past years there have been various plans to help agriculture, such as price supports, government buying of surplus, limitations of acreage planted, etc.

However, there is one item which causes "diminishing returns" to the farmer and that is the cost of transportation by railroad to the large terminal markets, or as a matter of fact, to any market in the country. Naturally the cost of transportation is paid for by the farmer.

Freight rates are now at such a high level as to disrupt the balance between a fair return to both the producer and the rail carrier. While the latter gets fatter the farmer gets more lean and hungry.

In order to give you a few concrete examples of what we mean, let's take iceberg lettuce coming out of Salinas, Calif. This commodity is packaged in two-dozen size cartons, and we would say the average f.o.b. price for the season has been $1.50. This to cover the cost of production and packing with little if any return to the grower. The cost of freight with refrigeration on this commodity to Philadelphia is $1.10 per carton, or equivalent to 75 per cent of the production and packing cost.

California celery has been selling for some time at $1.25 to $1.75 per crate f.o.b.; and the freight, with refrigeration, to Philadelphia ranges from $1.70 to $1.93 per crate. California honeydews for the past two months have been selling at $1.35 to $1.90 f.o.b. with the freight at $1.25 to $1.32 per crate. Many cars of California cantaloupes were sold f.o.b. recently at $2.50 to $2.75 with freight charges of $2.40 to $2.78 per crate. These are only samples of the many commodities shipped which follow the same pattern.

We would suggest that the USDA spearhead a move to have the Interstate Commerce Commission order the railroads to make at least a 25 per cent cut in their rates. When the railroads run into difficulties they ask the I.C.C. for temporary increases in rates, so why not do the same thing in reverse now that the farmer is running into difficulties?

Since the present trend of "diminishing farm returns" applies to most phases of agriculture such a move would have country-wide appeal to the farm bloc, and we predict that every national and local organization interested in the production or distribution of agricultural products would support and join such a move. It is our opinion that it is nearly time the farmers rather than the railroads are given consideration.

Philadelphia Terminals Marketing Assn.
Philadelphia 6, Pa. Walter J. Quinn

Shelf Life of Carrots

Dear Editor:

I believe it was in the September issue of AMERICAN VEGETABLE GROWER that there was an article referring to the shelf life of carrots at various temperatures. The article stated that the man that had done the research on the shelf life of various vegetables would be happy to send this information on request.

Through an inadvertent oversight on our part we mislaid our September issue, but we are still interested in getting in touch with this person. We would appreciate it if you could give us information regarding his name and address so that we might write him directly concerning this matter.

Faribault, Minn. K. E. Relyea

The man you want for shelf life of various vegetables is R. E. Hardenburg, Handling, Storage, and Transportation of Fruits and Vegetables, Bureau of Plant Industry, United States Department of Agriculture, Plant Industry Station, Beltsville, Md.—Ed.

Our Experience in Growing Strawberries

Dear Editor:

The article "High Yields Make Berry Profits" in the November issue was very interesting to me, and I thought your readers would be interested in our experience in planting and growing strawberries.

Most growers set out strawberry plants in the spring. However, we have found that we have better success by setting out our plants in the fall.

The center root and bud are the most valuable parts of the plant and should receive the best attention. We use the harrow more than any other tool in cultivating our strawberries. We practice the hill system and allow the plants to make only four new plants. The plants are mulched with sweet potato tops after the ground is frozen. We plant Temple, Sparkle, and Blakemore varieties.

Hammonton, N. J. Elgin C. Wade

Addresses of Mechanical Harvesters

Dear Editor:

I would appreciate information on the carrot and beet combine manufactured by the Scott Viner Company. I am interested in the functioning, efficiency, and capabilities of the combine. I would also like the price together with costs of operation.

Can you give me the address of the Scott Viner Company?

Salinas, Calif. C. T. Reich

Address of Scott Viner Company is 1224 Kinnear Rd., Columbus 8, Ohio.—Ed.

Dear Editor:

We were very much interested in the article "Progress in Potato Harvesting" in the September issue of American Vegetable Grower. We would like to look further into mechanical harvesting of potatoes and would very much appreciate your sending us the addresses of the following equipment companies: T. J. Lockwood Graders, Inc.; Dahlman Manufacturing Co.; Ed's Equipment Co.; and Champion Corporation.

Malone, N. Y. Stuart A. Child

Addresses are as follows: T. J. Lockwood Graders, Inc., Gering, Neb.; Dahlman Manufacturing Co., Braham, Minn.; Ed's Equipment Co., Shafter, Calif.; and Champion Corporation, 4714 Sheffield Ave., Hammond, Ind.—Ed.

Series on Vegetable Areas

Dear Editor:

I certainly enjoyed the article by Fred W. Jackson on New Jersey which appeared in your November issue. Very fascinating reading and a good start for this series.

Baltimore, Md. C. V. Duncan

American
VEGETABLE GROWER
REG. U. S. PAT. OFF.
(Commercial Vegetable Grower)
Vol. 2 JANUARY, 1954 No. 1

FEATURED IN THIS ISSUE

The four enlarged photographs of pepper, pea, carrot, and beet seed used to make the front cover, were taken by Victor R. Boswell, author of the article, "The Best Seed Is No Luxury," appearing in this issue.

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State News
New For You
Editorial Page

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The VEGETABLE Situation

PRODUCTION of winter vegetables during the 1954 season is forecast at about four per cent below 1953, according to the USDA. Larger production for artichokes, lima beans, beets, escarole, and lettuce is indicated. However, production of broccoli, cabbage, carrots, cauliflower, celery, kale, peas, and shallots will be less.

Most spectacular change in winter vegetables has occurred in California's desert areas and in Arizona where acreage of winter carrots has been sharply reduced following the relatively unfavorable marketing conditions of recent years.

ARTICHOKES

California expects to produce about 900,000 boxes during the 1953-54 harvest season, which is above last year. Increase is due in part to more acreage.

BROCCOLI

Production is expected to be less than last year. Arizona reports her crop in good condition. Broccoli in South Carolina and Texas, also, looks good.

CARROTS

Winter carrot crop is expected to be about 16 per cent less than last year. Sharp reductions in acreage in Arizona and California have accounted for part of this condition. In Texas, climatic and moisture conditions have been favorable for carrots in all areas.

CABBAGE

Production is expected to be slightly less than last year. Because of reduced acreage, crops in Arizona and Florida probably will be substantially lower this year. In Texas, favorable weather has enabled the crop, which was planted late, to make good progress.

CAULIFLOWER

Production will be about equal to last year. Reduced plantings and lighter production are forecast for Arizona and Florida, but in Texas the reverse has occurred where acreage has been increased in all sections.

CELERY

Celery crop will probably be slightly under that of last year. A slightly smaller acreage in California combined with smaller yield prospects has accounted for the expected reduced production. Weather conditions in California have been very favorable. Fields at Oceanside, in northern San Diego County, will be available for harvest in January. In Florida, celery has made good progress in spite of excessive rains.

LETTUCE

A slightly larger crop is forecast for this season. Total acreage, however, is somewhat smaller this season but yield prospects are more favorable in the important producing states. In Texas, the crop has developed under excellent conditions, while in Florida weather during most of the growing season was too warm and some fields are showing seeders. Heavy rains, also, were detrimental to the Florida crop.

GREEN PEAS

A very small crop will be harvested in Texas this season, about 33 per cent below last season. A decline in acreage in Texas and the discontinuing of growing winter peas in California are responsible for this trend.

SHALLOTS

Louisiana crop will probably be about 36 per cent below that harvested last season. This has been primarily due to reduced acreage. Production to date has been extremely light and volume supplies will probably not be available until mid-January.

ESCAROLE

Production is forecast above last year. This is primarily due to increased acreage. Plantings have made good progress despite unfavorable weather conditions.

EARLY POTATOES

Harvest is now forecast at 3,029,000 bushels. While this is 25 per cent smaller than last year, it is the second largest on record. In Florida, acreage is substantially smaller than last year. Texas reports an acreage about equal to last year.

Onion planting in which coated seed is spaced eight rows per bed. Photographs courtesy Filtrol Corporation.

Pelleted Seed for Precision Planting

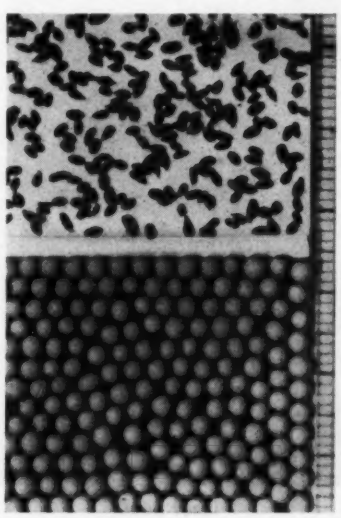
Costly hand thinning operations and larger crops result from the use of coated seed

By R. L. CAROLUS
Michigan State College

PRECISION planting of small seed of crops such as lettuce, carrot, onion, or turnip with present day mechanical planters has not yet been achieved. Where evenly spaced stands are essential for satisfactory growth or for a uniform quality product, any method that might allow the rapid planting of small vegetable seeds spaced from one-fourth to two or more inches apart would avoid tedious, costly hand-thinning operations. Frequently a labor shortage or a period of wet weather at germination delays thinning long enough to injure the crop or facilitate the spread of disease.

A vast amount of improvement in both precision planting methods and in protection against adverse climatic and soil conditions is still needed to assure even, well-spaced stands of most crops when unfavorable conditions for germination occur. Pelleting has resulted in a remarkable improvement in precision planting, and if it does not adversely affect germination, will probably prove to be economically sound on this basis. The direct planting of expensive seed becomes feasible through pelleting.

The pelleting process involves the coating of seed with inert, pulverized minerals. These materials may be fly ash, feldspar, celite, bentonite, or vermiculite, which are made to adhere by means of some non-toxic water-soluble plastic. The operation is performed in a rotary pan similar to those used in the manufacture of pills and some candies. Pelleting increases the size or the bulk of the seed from one to 20 or more times and is capable of turning out an almost spherical product.



Left—Coated and uncoated carrot seed. Seed at top is uncoated; seed at bottom is coated.

During the pelleting process any one of a combination of chemicals may be added to the coating materials and incorporated in the pellet. If desired, fungicides may be added at 10 to 50 times the concentration that can be made to adhere by conventional seed treating methods. Combinations of fungicides and insecticides may be added. In some cases results have indicated that large concentrations are highly desirable and beneficial in reducing loss from dampening-off and other soil-borne organisms. In other cases they are unwarranted or may even reduce germination.

The more insoluble fertilizer materials may be incorporated in substantial quantities in the pellet, and soluble materials including the minor elements may be added in small amounts. Increasing the phosphate concentration in the area near the germinating seed has proven to be a distinct advantage in many situations. The use of organic nitrogen carriers and powdered skimmed milk has proved beneficial in some cases through benefiting the plant directly or indirectly by stimulating bacterial activity in the neighborhood of the germinating seed.

The cost of the pelleting or coating

(*Continued on page 16*)

THE BEST SEED IS NO LUXURY

An old subject with important new angles the grower will want to consider before buying

By VICTOR R. BOSWELL

U. S. Department of Agriculture

IT IS pointless these days to argue or even talk about poor seed versus good seed. It is obvious that no one can afford to plant poor seed, and, furthermore, we have seed laws that are designed to keep poor seed off the market. Our concern here is with good seed versus better seed, or with good seed versus the best seed.

Above the legal minimum standards there is some latitude for variation in the true economic value of seeds. The old statement that "the best seed is the cheapest seed" is true today in more ways or for more reasons than it has been in the past. It seems well for us to remind ourselves of some of the recent developments and situations that have a newly important bearing on this old subject.

As hand labor becomes more scarce and machines must be used to do more of the growers' work, precision of operations and uniformity of materials become more important. To insure uniform spacing of plants at the correct distances in the rows the seed must be of relatively uniform size and shape so that precision planters can handle it effectively.

Wide variations in size and shape within a single lot of seed may result in poor work by the planter. Some seeds may be placed too far apart for a full stand and some may be so close together that the plants will not develop properly without expensive hand thinning.

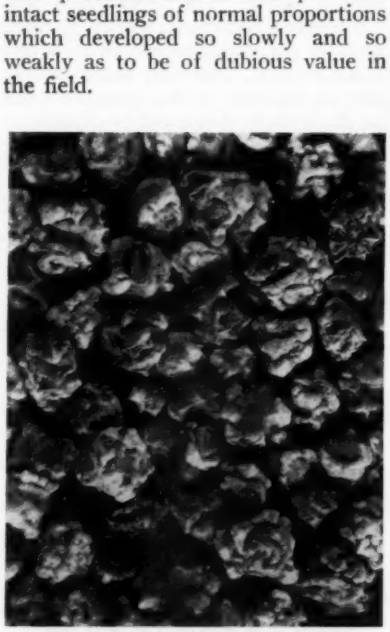
Some seeds are already being graded for size before sale and it is probable that additional kinds will be sized for adaptation to precision planters.

The increasing use of machines also makes more necessary than before highly dependable germination and seedling emergence, to get proper stands of plants economically. Spottiness of stand from poor germination is just as bad as that from irregular planting.

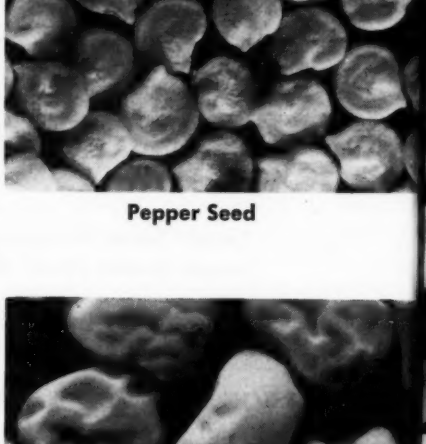
The property of seeds that we commonly call viability involves more than merely the capacity to germinate, or even to push a seedling through the soil to the sunlight. There is a rapidly increasing appreciation of the capacity of seeds to produce seedlings and plants that will survive relatively unfavorable conditions and develop into high-grade, productive individuals.

Not all seeds that germinate produce equally sturdy seedlings. Some seedlings never emerge from the soil; and of those which emerge not all are able to develop into productive plants although they may appear quite sound and free of insect or disease attack. A conventional germination test is important and generally tells a great deal about the potentialities of a particular lot of seed, but it may not tell the whole story.

We have seen seeds from unfavorable storage conditions, for example, that produced almost 100 per cent intact seedlings of normal proportions which developed so slowly and so weakly as to be of dubious value in the field.



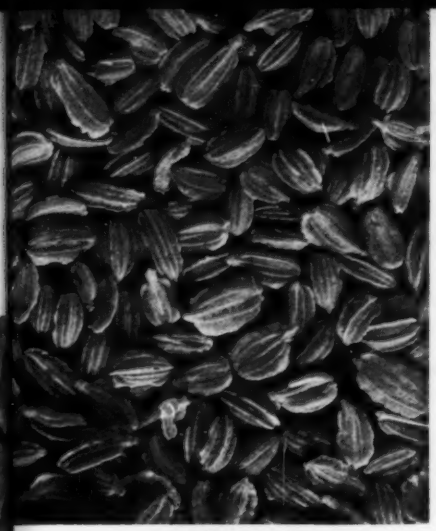
Beet Seed



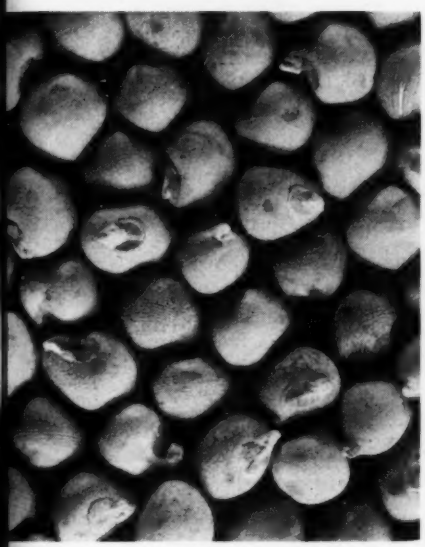
Pepper Seed

Pea Seed

Studies of healthy but unproductive "loafer" plants in the field have shown that generally they are the slow or weak starters. Plants that emerge late or lag behind their neighbors when small not only stay behind but are often unfruitful or unmarketable although they appear normal and healthy.



Okra Seed



Carrot Seed

All photographs by the author

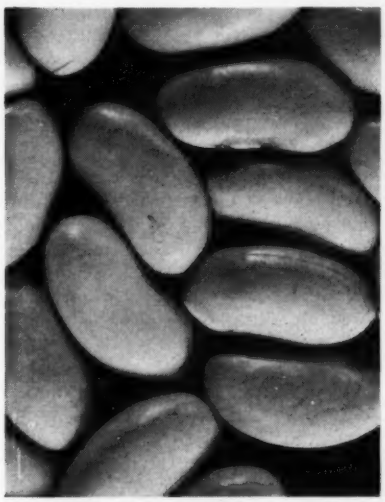
Research agencies are studying seedling and plant vigor in order to improve evaluation of seeds before planting. With costs and competition what they are now growers need the best seeds to minimize the number of "loafer" plants and of blank hills or skips in the row. The "loafer" may be more costly than the skip because it competes with the adjacent normal plants to some extent.

A relatively small number of vegetable plant diseases are seed borne but any one of them can be truly disastrous when conditions favor its development and spread. Anthracnose, blights, and mosaic in beans, black leg in cabbage, angular leaf spot in cucumber, and bacterial canker in tomato are old enemies. Now we have seed-borne mosaic in lettuce and possibly some other crops to deal with.

To the extent that state certified seed is available it should be used. Gárden bean and cabbage seed from the arid West are recommended in perference to seed from rainy areas, and tomato seed "fermented" in the recovery process is recommended, all to minimize disease hazards.

Most American seed producers protect their customers, and themselves, by growing seed in places and by methods that keep the seed relatively disease-free. Don't take chances on "bargain" lots of seed of dubious background. Buy from sources of known dependability.

It means money in the grower's pocket if he uses seed stocks that produce even a little more yield, a little more uniformity, a little more attractiveness than run-of-the-market stocks of the variety he grows for a specific purpose. These superiorities beyond the average or beyond legal minimum standards may affect not only the yield but also the demand for the produce, and in turn the price and the volume sold. Such superiorities cannot now be written into specifications for seeds but they exist and are worth looking for.

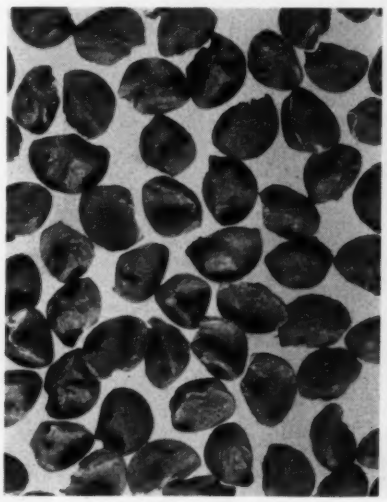


Bean Seed

Onion Seed

In seeking these superior seeds the grower is rather on his own except for seeds certified by responsible agencies. It is not the custom in this country for trade organizations or public agencies to recommend one source or another as the best. Growers, however, talk among themselves and word gets around as to who some of the best suppliers are.

The most practicable way to choose good seed is, first, to choose a good seedsman. Fortunately, there are many good ones, both small and large, in this country. Some seedsmen specialize in the production of only a few items, devote great care to those, and are noted for their excellence. For other items the grower may find that one or more other seedsmen are best able to meet his particular needs.



Cabbage Seed

The grower should make a practice of making test plantings of seeds from a few of the best sources he can locate by grapevine or otherwise. When he finds a source that provides a "best" stock of an item for his particular conditions he should stay with that source as long as it meets his needs in a superior way.

The best seed costs more to produce than does merely good seed. It may not be reasonable to expect a seedsman to do the best possible jobs of development, stock maintenance, and production and then sell the seed at as low a price as that for which merely good seed can be sold. High price does not, of course, assure high quality; but if the best is to be obtained both its value to the grower and its cost of production must be taken into proper consideration. THE END

PROMISING NEW VARIETIES

Here are outstanding varieties your seed houses consider worthy of trial

Big Boy tomato is a Burpee F_1 hybrid creation. It reaches peak yield about midseason and can be grown successfully in almost every section of the country. Fruits average 10 ounces in weight, are smooth, deep globe to deep oblate in shape. Scarlet-red skin covers the fine flavored, quality flesh. Foliage is moderately dense thus affording protection to the fruits against sunscald.

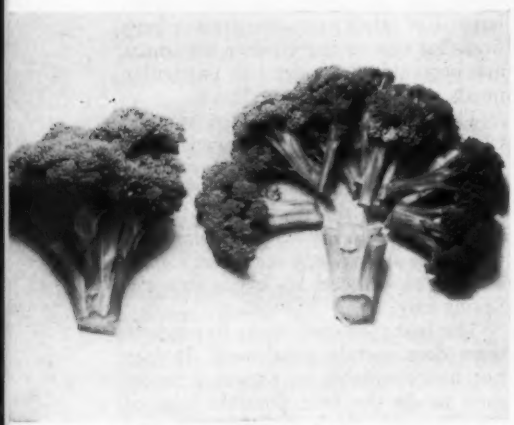
MORE often than not, a new, worth while variety of vegetable is the result of long years of research. Painstaking care then goes into the selection of seed so that the end result will be a product worthy of the care given it.

Seed of some of the varieties illustrated on these two pages as well as the following two is still in limited supply. This is particularly true of some of the new hybrids which are credited as being more vigorous in growth and better yielding than regular varieties.

Further information on these varieties may be obtained from the seed houses that introduced them. Their addresses are:

Associated Seed Growers, Inc., New Haven 2, Conn.; W. Atlee Burpee Co., Philadelphia 32, Pa.; Corneli Seed Co., 101 Chouteau Ave., St. Louis 2, Mo.; Ferry-Morse Seed Co., P. O. Box 778, Detroit 31, Mich.; and Northrup, King & Co., Minneapolis 13, Minn.

Corneli's **Keystone Wonder Giant** was developed for market, shipping, and canning purposes. It is a highly improved pure-lined pepper of the Florida Giant type. The deep glossy green fruits turn deep scarlet when ripe, measure 4½ inches long and 3¾ inches across; are mostly four-lobed. The plants have abundant foliage.



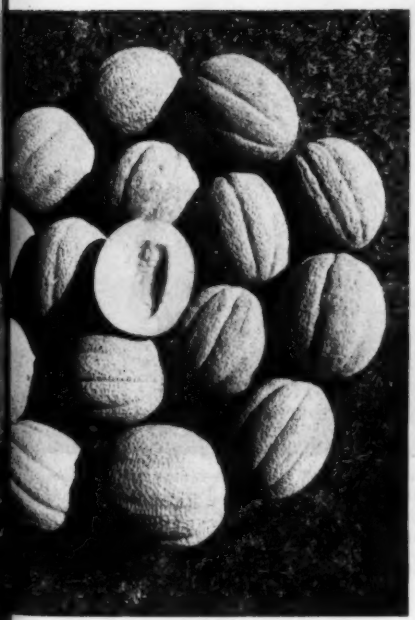
This extra early sprouting variety of broccoli, named **Green Mountain**, was developed by Ferry-Morse to meet the needs of market growers and freezers. The vigorous broad-leaved plant forms large, compact, dark green center heads which mature uniformly making it easy to harvest with few cuttings. Flower stems are long which facilitates dividing the heads for freezing. Laterals are produced somewhat slowly but sometimes nearly equal size of central heads.

Where a shorter top is desirable **King Red** beet, introduced by Northrup, King & Co., will answer the purpose. The dark green tinged with deep red top attains a height of 12 to 14 inches. The root is globe to round shape, smooth skinned, and uniform, with a uniform dark red interior.

Seed is available for commercial plantings of Asgrow's **Badger Market** cabbage, developed by Wisconsin AES and USDA. Badger is a yellows-resistant variety in the second early maturity class producing small, round, solid heads which stand well after maturity without breaking. Of particular interest in areas where Copenhagen Market and Golden Acre varieties are popular.

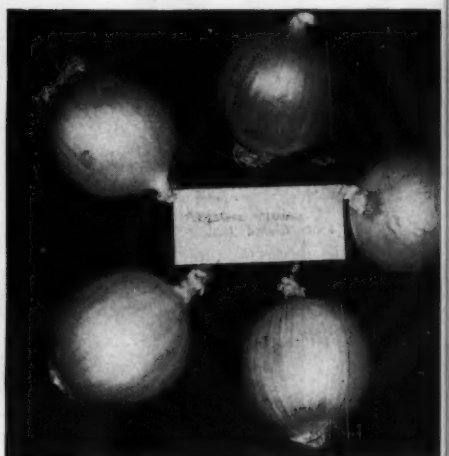
Crackproof Pink is a Ferry-Morse tomato introduction. It matures about a day later than Stokesdale. Vines are of medium growth with good vigor and abundant foliage. Fruits are medium to large flattened globe and are free from star cracking. Skin is pink with a deep red, firm, meaty flesh.

ForeMost E. E. No. 1 (Extra Early No. 1) hybrid sweet corn is offered by Ferry-Morse for limited 1954 sales. The variety is a day or two earlier than present leading varieties in the extra early field. Its 8-inch long, slighly tapered ears have 12 to 14 rows of bright golden yellow kernels. It requires 66 days to mature.



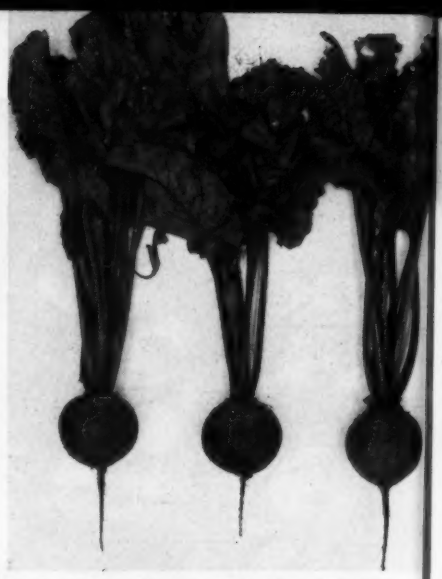
An All American Bronze Medal for 1952 was awarded **Golden Delight**, a Ferry-Morse cantaloupe introduction. It is for home garden and local market use and is not recommended for long distance shipping. This large, broad, oval melon is a Pride of Wisconsin type but is larger and earlier. Its thick salmon colored flesh has a delightful flavor.

Outstanding attribute of **Burpee Hybrid Cucumber** is its resistance to mosaic and downy mildew. It outyields open-pollinated varieties because the vines continue to produce long after other varieties have succumbed to these diseases. This hybrid is a white spine, slicing-type cucumber. It is recommended for the home garden, market grower, shipper, greenhouse culture, and hydroponics.



Keystone Yellow Sweet Spanish No. 6 was selected and propagated at high elevation for 15 years at Corelli's Twin Falls, Idaho, proving station from material originally developed by Prof. A. M. Binkley of Colorado Experiment Station. Produces tremendous tonnage of U. S. No. 1 per acre and stores overwinter with remarkably low shrinkage.

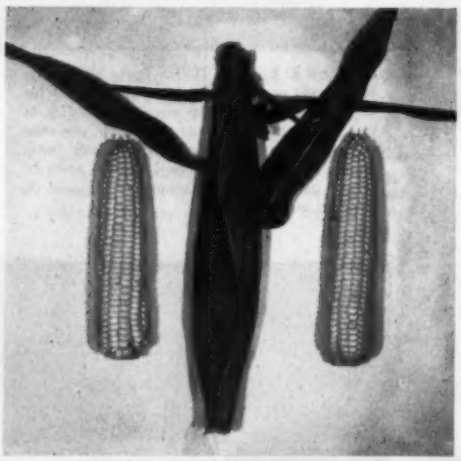
PROMISING NEW VARIETIES



Special Crosby beet, a Northrup, King introduction, is an early home and market garden variety. It is outstanding for early bunching. Root is smooth and round with a small tap root. Interior is medium red. Top is 10 to 12 inches tall, dark green tinged with maroon.

Mandarin Chinese cabbage, introduced by Ferry-Morse, has a deliciously different flavor and produces firm, solid heads which average approximately 8 to 9 inches in height and 4 to 5 inches in diameter at the broadest point. Mandarin matures a few days later than Michihli.

Burpee Hybrid Eggplant is a true, first generation hybrid. Vigorous plant produces continuously till frost. Fruits are oval, medium sized, and of a good dark purple with a high gloss. Recommended for home and market gardens, and its adaptability is widespread. It is more resistant to drought and disease than any other commercial variety.



Earliest Market King was developed by Northrup, King to obtain an early high quality hybrid corn especially adapted for northern areas.

Grand Central broccoli is a main season variety developed at the Asgrow Eastern Breeding Station. It matures uniformly, the main head being followed by a heavy crop of sprouts which can be harvested in four cuttings instead of the usual six. It has performed particularly well in middle Atlantic and Southeastern states. In the North and Northeast it should be transplanted early.

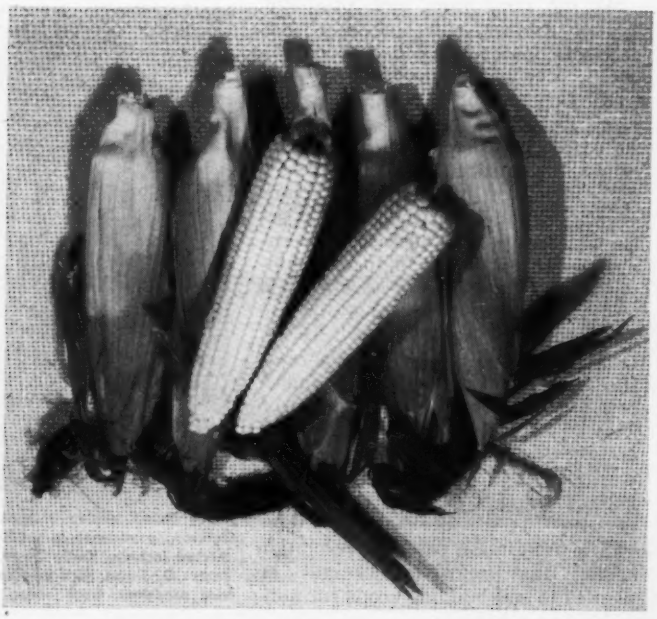
Hollander Short Stem Northrup-King strain cabbage has a deep round shaped head about 6 inches in diameter and weighing 4 to 5 pounds. A good late cabbage for market and storage. Heads are small and become very solid at an early stage of growth.

Yolo Wonder pepper, an Asgrow introduction, is resistant to tobacco mosaic and less seriously injured than standard varieties by cucumber mosaic. Fruits are of California Wonder type with thick walls and dark green color.

Strictly limited seed supplies of **Asgrow Y51 Hybrid** onion are available. This exclusive Asgrow hybrid matures with the widely adapted Asgrow Y41 or as an early main crop variety in the Northern and Western states. It is not suitable for production in the far South.

Royal Chantenay is a Northrup, King carrot introduction developed for the canner and freezer but suited also for home and market gardener. Roots grow to a length of 6½ inches and a width at shoulder of 2½ inches. Interior is a reddish orange. Tops are 15 to 20 inches tall.

Corneli's **Gold Rush** is an early yellow hybrid corn variety. Its earliness is useful to canners since it starts their packing season two weeks earlier. It is also valuable for late planting to avoid main brood of European corn borer or to make last minute additions to acreage. A favorite with shippers on muck lands of Florida, with canners in Canada and the northern states, and with home and market gardeners everywhere.



Asgrow Golden 50 is a midseason hybrid corn variety. Plants are slightly taller and less subject to suckering than Golden Cross Bantam and the main ear is carried about 5 inches higher on the stalk. Ears average 7 to 9 iches in length and row count averages 14 to 16. It stands up well in hot, dry weather and is resistant to bacterial wilt.

VGAA LOOKS TO '54

Leaders discuss vegetable outlook and role of national organization

THE whys and wherefores of successful vegetable production were thoroughly explored during the 45th annual meeting of the Vegetable Growers Association of America, Inc., held early in December in St. Louis, Mo. Growers facing uncertain conditions could ill afford to miss so important a meeting.

In the year approaching more thought must be devoted to more efficient use of tools and chemicals, declared VGAA President A. Lee Towson of New Jersey. This is truly a chemical age, he said, and changes are taking place so fast that those who can't keep up-to-date are losing out.

Next year's meeting is scheduled to take place with the New York State Vegetable Growers Association at the new War Memorial Building in Syracuse. There will be ample space for heavy machinery exhibits.

VGAA leaders formally decided to open a Washington office and hire a full-time paid secretary. Present secretary, H. D. Brown of Ohio State University, who has served the association for many years, is desirous of giving up the position. Vegetable growers need a voice on the spot regarding national legislative matters.

At the same time past president Walter Pretzer, now chairman of a membership drive, will attempt to double VGAA membership. He has studied the membership potential of every area in the country and his carefully laid plans should benefit the association immeasureably.

A factor of importance to every vegetable producer is the threat of released acreages. Because the government is committed to high price supports, large acreages of certain field crops will be removed from production and possibly will be planted to vegetables. Not only would this increase the vegetable supply unfairly but it could upset the smooth operation of associations of canning crop growers created through great effort and hard work of enlightened growers who have bonded together to bargain with canners.

The association passed a resolution asking that released acreages be planted to soil-building crops for non-harvested, non-grazing, soil-conserving purposes only and that compliance be made a condition of eligibility for any price supports or subsidy payment.

To the members of the VGAA during their national convention, Secretary of Agriculture Ezra Taft Benson sent his greetings: "I want you and your fellow members to know of my appreciation for your splendid interest and support in the development and administration of a sound farm program."

Support your national organization by adding your name to the growing list of members. Dues are nominal. For details contact your local vegetable growers' association.—*Ed.*

By unanimous vote the association resolved in favor of Secretary of Agriculture Ezra Taft Benson's program which is opposed to public subsidies and government price supports. At a panel discussion on government in agriculture, the congressman from Pennsylvania Karl C. King, who is a member of the House Agricultural Committee, criticized the trend towards socialization, declaring that farmers today are more dependent on government gifts and government regulation than they are on their own ability to meet competition.

Mr. King declared himself in favor of a price guarantee which is below the cost of production. He would like to see legislation which gradually reduces high supports to a disaster-preventing level of 70 per cent of parity.

Growers at the meeting asked that Congress clarify to the ICC its intent to maintain the agricultural exemption on trip-leasing. Classifying vegetable workers on farms near large cities as agricultural workers within the area of production as established in the Fair Labor Standards Act was also requested.

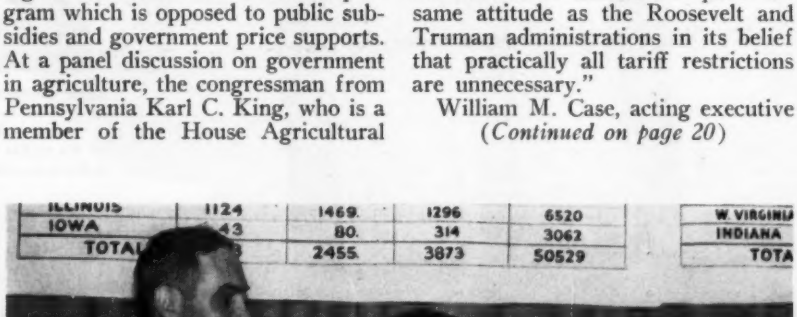
The association resolved that tariff regulations and import quotas should prevent the disruption of markets by produce grown under conditions of cheap labor and low taxes.

Tariffs were discussed more thoroughly by the National Association of Greenhouse Growers. Its president, O. Keith Owen of Terre Haute, Ind., told of the work his organization has done to bring to the attention of legislators the harm caused the greenhouse vegetable industry by excessive imports of vegetables from Cuba and Mexico.

"Unfortunately," he said, "the new administration has taken quite the same attitude as the Roosevelt and Truman administrations in its belief that practically all tariff restrictions are unnecessary."

William M. Case, acting executive

(*Continued on page 20*)



Three VGAA officers snapped during recent convention in St. Louis. From left to right: A. Lee Towson, president; James D. Swan, 1st vice president; H. D. Brown, secretary. Other officers elected include: Keith Owen, vice president, greenhouse; Harold Evans, vice president, potatoes; James D. Swan, vice president, muck; Paul Dickman, vice president, marketing; A. C. Thompson, vice president, truck crops; A. W. Chambers, vice president, processing; Elmer Stoll, treasurer.

STATE NEWS

- **New Jersey Grower Produces 25.88 Tons Tomatoes Per Acre**
- **Georgia Growers Pioneer in Growing Florida Pascal**

NEW JERSEY—A per acre production of 25.88 tons of tomatoes won for Everett Abrams of Vincentown the title of champion New Jersey tomato grower for 1953. In honor of his feat he was presented with a $100 savings bond by Dr. Frank App, president, New Jersey Canners' Association. The award was made during the annual Tomato Day program of the recent state horticultural society convention.

Officers of Missouri Vegetable Growers Association, elected during recent VGAA convention, are, from left: Clyde Cunningham, secretary, Columbia; Milton Mueller, president, Chesterfield; and Paul McIntyre, vice-president, Kansas City.

Nathan Forman of Englishtown ranked second with 24.67 tons per acre, and Gerald Van Treuren of Yardville third with 23.04 tons.

Stanley G. Blaszyn of Bordentown was crowned "Quality Champion" with a yield of 14.91 tons per acre which graded 86.9 per cent U. S. No. 1, 12.3 per cent U. S. No. 2, and 0.8 per cent culls. He also received a $100 bond.

Two brothers, Roger C. and Lester C. Jones, Jr., Mount Holly, won the 4-H Club tomato growing championship, while the Future Farmers of America winner was Bart Jennings of Vincentown. All three boys received engraved wrist watches from the canners' association.

C. H. Nissley, vegetable crops specialist at Rutgers University, who supervised the gathering of records from the contract tomato growers, reports that 669 growers qualified for the Ten Ton Club in 1953 as compared with only 132 in 1952 and 767 in 1951. Of the 669 growers, 29 managed to produce more than 20 tons to the acre, 160 exceeded 15 tons, and 480 got 10 tons or more.

This is the 20th year a Ten Ton Club contest has been sponsored by the state university and the state canners' association to encourage the growing of greater yields of quality tomatoes.

GEORGIA—There's a new crop in the Georgia mountains! Two hard-working growers—Henry Cosby and Curtis Maddox of Mountain City, Ga.—brought through a five-acre planting in 1953 of Florida Pascal celery. They did a fine job and deserve a pioneering medal.—*Ray Sheldrake, Asst. Ext. Hort., Athens.*

MARYLAND—Fred, Ben, and Mort Fox, sons of Harry Fox, of Easton, last year increased by 20 per cent the production of Henderson limas on land treated with SNOSBP (Dow Premerge or Sinox PE) for weed control immediately after seeding. Six pounds per acre of dinitro (Dow Premerge or Sinox PE) were applied as a spray in 25 gallons of water. This treatment controlled all weeds and only one cultivation was needed in late summer for aeration. James C. Saulsbury, whose farm is also near Easton, feels that the same dinitro sprays saved his crop of Fordhook limas.

Wicomico County leads the state, the nation, and (we assume) the world in the yield per acre of sweetpotatoes. An average per acre yield of 175 bushels puts Maryland on top again in 1953.

Two hundred growers gathered in Salisbury, Md., to hear the latest in vegetable production techniques developed at the universities of Maryland, Virginia, and Delaware. The occasion was the annual meeting of the Peninsula Horticultural Society.

Queen Annes County Extension Agent, James Walter Eby, passed away recently. Mr. Eby was agent in Queen Annes since 1950.—*Andrew A. Duncan, Ext. Veg. Crop Spec., College Park.*

WASHINGTON, D. C.—Seven hundred members of the Southern Seedsmen's Association met at the Statler Hotel, November 29-December 2, 1953, for their 35th annual convention, which was termed by John Meredith, Jr., of Shreveport, La., executive secretary-treasurer, as "most successful." Attendance was under that of other recent conventions, but still quite high.

The members, including seed growers, wholesalers, and retailers, heard Dr. Carroll Barnes, of Charleston, S. C., speak on "Breeding Better Vegetable Varieties for the South;" Under Secretary of Agriculture True D. Morse speak on "The Solid Future of Agriculture;" and Alex Sehlmeyer, of New York, N. Y., discuss "Importance of Good Public Relations to the Seed Trade."

A tour of the nation's capital area, including one afternoon at the noted agricultural experiment station at nearby Beltsville, Md., was a feature of the convention program.

The delegates came from the eight southeastern states, with those from Virginia, North Carolina, and South Carolina serving as "hosts" for the convention.—*Larston D. Farrar.*

OHIO—Vegetable and potato growers attending the 39th annual meeting of the Ohio Vegetable and Potato Growers Association in Toledo, February 1-3, will hear latest information on production and marketing of quality vegetables and potatoes. Convention headquarters: Commodore Perry Hotel.

In addition to general sessions for all growers, special sessions will be held on greenhouse vegetables, potatoes, and outdoor truck crops. Extensive exhibits and displays of new pesticides, packages, equipment, seed, and similar supplies used by vegetable growers will be of interest to all. One of the highlights of the meeting will be the annual banquet on Tuesday evening, February 2, when the 1954 Ohio Vegetable queen will be crowned. The queen will reign during the year.

Panel discussions on various phases of vegetable and potato production and marketing, as well as talks on timely subjects by various experts will be presented. Topics for panel discussion include marketing greenhouse vegetable crops, plant growing problems and their solution, new develop-

(*Continued on page 14*)

Illinois Vegetable Growers Association elected these officers during recent VGAA convention. From left: George Powell, Jr., director, East St. Louis; Arthur Selme, secretary-treasurer, Rock Falls; Walter Sass, president, Chicago; Harold Fingerhut, vice-president, East St. Louis; Clyde Weissert, past director, East St. Louis.

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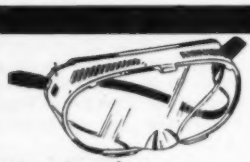

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STATE NEWS

(Continued from page 13)

ments in pest control, what to look for when buying seed potatoes, and how to reduce potato grade defects.

Out-of-state speakers who will appear on the program include Dr. Victor R. Boswell, USDA; Dr. R. L. Carolus, Michigan State College; Dr. C. E. Dieter, Dow Chemical Company; and Dr. Malcolm H. McVickar, National Fertilizer Association.

Dr. Boswell will discuss recent developments in the field of vegetable and potato research. The relationship between irrigation and various cultural practices like spacing, fertilizer application, and related items will be discussed by Dr. Carolus, who will also tell of recent developments in vegetable packaging.

The timely subject of soil fumigation to control diseases, nematodes, and weeds will be discussed by Dr. Dieter. Dr. McVickar will give latest information on how to apply fertilizer for vegetable crops.

A ladies program has also been planned.

All growers are invited to attend.—*E. C. Wittmeyer, Sec'y, Columbus 10.*

MICHIGAN—Celery growers and shippers who met in Zeeland in early December for the third annual meeting of the Michigan Celery Promotion Association were complimented by Bernard J. Imming, field director, United Merchandising Institute, for their "Quality First" program. Mr. Imming stressed the importance of not only seeing that first grade, high quality celery be put in every package, but that this quality be preserved until it is used by Mrs. Consumer.

New offices of the National Potato Council are at 541-42 Munsey Building, Washington, D. C. William M. Case of East Grand Forks, Minn., nationally known potato man and executive director of the council, has his headquarters in the new location.

Undoubtedly the 1954 plantings will show a greater proportion of Pascal varieties than in the past, as part of the reason for lagging demand for the 1953 crop was attributed to too much Golden for the trade to absorb.

The association, organized to promote the welfare of Michigan's celery industry, is governed by a 15-man board of directors. During the meeting Harold Schut of Hudsonville was elected to a three-year term on the board of directors. Re-elected were: Lawrence VerSluis of Kalamazoo; Ed Weesies of Montague, George Westrate of Jenison, Herm Vande Bunte of Hudsonville, and Dick Harvey of Muskegon.—*Howard Trapp, Sec'y, Beulah.*

MAINE—Gerard Dionne's new potato warehouse at Hammond Siding in Van Buren was the scene of a recent potato car loading demonstration. The techniques involved in the use of Dionne's new machinery for grading and packaging potatoes were viewed by 20 growers, shippers, and foremen. In charge was Arling C. Hazlett, extension service economist in marketing of the University of Maine, Orono.

Uniformly, neatly loaded potato cars do much to impress the receiver with a good job done by the loader, stated Hazlett. Proper carloading helps to reflect careful handling of the potatoes all along the line. Such a minor thing as stacking the bags always with the brand name up is a sign of such care in loading, cautioned Hazlett.

FLORIDA—The prepackaging of radishes in Florida is sweeping through the radish industry like a grass fire. An aggressive celery grower in the Belle Glade area is in the process of building one of the latest and most complete mobile celery field harvesters ever constructed in this state.

George H. Cooper, Princeton, was honored by the Florida Fruit & Vegetable Growers Association during its recent 10th annual convention in Miami with a distinguished service award. The citation was in the form of a plaque, for unselfish service in the interest of Florida agriculture.

"Strength in Unity" was the theme of the talk presented during the convention by S. R. Smith, Production and Marketing Administration. Smith told the growers that marketing agreements and orders are by no means a cure-all. The marketing of vegetables starts before a furrow is turned or a seed planted. "Growers should tailor their plantings to the amount it is reasonable to expect can be sold at profitable prices," Smith said.

Andrew Duda, Jr., Oviedo was elected president of the association, Dixion Pearce, Miami, vice-president; and Joffre C. David, secretary-treasurer.—*George Talbott, Orlando.*

ILLINOIS—William F. Lomasney has resigned from the University of Illinois to accept a position with the extension service in the USDA, Washington, D. C. Mr. Lomasney was in charge of the distributive education program conducted in cooperation with fruit and vegetable wholesalers and retailers within the state. In Washington he will head up this type of work in the federal extension service.

Gordon Kleiman, a native of Michigan, is now conducting the Illinois program. Much of Kleiman's time during the past year has been spent on merchandising in retail stores.—*Norman F. Oebker, Urbana.*

CALENDAR OF COMING MEETINGS & EXHIBITS

Jan. 7—Maryland Vegetable Growers Assn. annual meeting, Lord Baltimore Hotel, Baltimore.—Andrew A. Duncan, Ext. Veg. Crop Spec., College Park.

Jan. 8–9, 1954—Connecticut Vegetable Growers Assn. annual meeting, Hotel Stratfield, Bridgeport.—E. C. Minnum, Ext. Vegetable Specialist, Storrs.

Jan. 13—Michigan Agricultural Conference annual banquet, Kellogg Center, Michigan State College campus East Lansing.—Howard Trapp, Beulah.

Jan. 19—Maine Vegetable and Small Fruit Growers Assn. annual meeting, Lewiston Armory, Lewiston.—Robert W. Paulson, Ext. Vegetable Specialist, Orono.

Jan. 20–21—Suffolk County Vegetable Growers' 19th annual convention, Farm Bureau Auditorium, Riverhead, L. I., N. Y.—Walter G. Been, Sec'y, County Agr. Agent, Riverhead, L. I., N. Y.

Feb. 1–3, 1954—39th annual meeting Ohio Vegetable and Potato Growers Association, Commodore Perry Hotel, Toledo—E. C. Wittmeyer, Ohio State Univ., Columbus 10.

Feb. 4–5, 1954—University of Wisconsin Farm and Home Week vegetable crops program in conjunction with Wisconsin Muck Farmers' Assn. annual meeting, University of Wisconsin, Madison.—O. B. Combs, Sec'y, Madison 6.

Feb. 10–11—Suffolk County Potato Growers' 22nd annual convention, Polish Hall, Riverhead, L. I., N. Y.— Walter G. Been, Sec'y, County Agr. Agent, Riverhead, L. I., N. Y.

Feb. 18–20—Watermelon Growers and Distributors Assn., Shamrock Hotel, Houston, Tex.—J. J. Parrish, Sec'y-Treas., Adel, Ga.

Malathion* called "the most promising new insecticide"!

Why "most promising"? Because malathion offers these combined advantages:

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Controls mites and aphids and many other insect pests on fruits and vegetables.

Much more toxic to insects than to mammals. "One of the safest insecticides to handle," reports USDA. Necessary precautions for safe handling similar to those for DDT.

Compatible in spray tank with most other spray materials.

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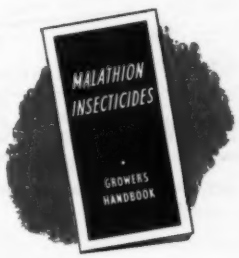
A Southern Experiment Station applied 2½ lbs. of 25% wettable malathion in 100 gallons of water on a heavily infested turnip crop and obtained practically a 100% kill of all turnip aphids. Malathion also controls aphids on other crops, as well as Mexican bean beetle, leafhoppers and many other vegetable pests.

A product of American Cyanamid agricultural research, malathion can help you farm more profitably, more easily.



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COP-O-ZINK

COP-O-ZINK is a new, neutral copper-zinc fungicide containing 42% copper and 11% zinc. COP-O-ZINK gives superior performance in control of fungus diseases. COP-O-ZINK'S composition of two essential elements gives it added value in correcting deficiencies of zinc and copper and in stimulating plant growth. COP-O-ZINK is compatible with all inorganic and organic insecticides. No lime is required. For use in spraying or dusting.

"MICROGEL"

MICROGEL

MICROGEL contains 50% copper as metallic and is chemically stable. Can be used most effectively on all truck crops — also grapes, citrus fruit, melons and strawberries. Microgel is simple to use. It can be added directly to spray tanks, saving time and labor.

ES-MIN-EL
SOIL APPLICATION

Es-Min-El is now available in spray or dust form. If you haven't mineralized your soil, you can now feed these minerals to your plants through the leaves and stems. Es-Min-El spray or dust is a neutral form of Copper, Manganese and Zinc.

SOLUBLE TRACE MINERALS

Tennessee's trace minerals are soluble and their nutritional value is immediately available to the plant, Soluble trace minerals are more economical and faster acting.

Request—

That your local dealer furnish you Tennessee Tri-Basic Copper Sulphate when buying Copper dust mixtures.

ES-MIN-EL SPRAY or DUST

FREE LITERATURE — For Further Information, Phone, Wire or Write . . .

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Add to your income by selling AMERICAN VEGETABLE GROWER. It's a logical combination for AMERICAN VEGETABLE GROWER will help your customers get the best results from the seed you sell them. *Make every call pay!* This means additional cash for you regardless of whether you sell a seed order or a subscription to AMERICAN VEGETABLE GROWER.

Write today for our liberal, nursery agents' plan. Address:

EDWARD MEISTER, General Manager

106 Euclid Ave. **AMERICAN VEGETABLE GROWER** Willoughby, Ohio

PELLETED SEED

(*Continued from page 5*)

process varies with the type of seed, the chemicals incorporated, and the relative size of the pellet. Prices have ranged from about five cents a pound for coating large seeds like sweet corn and beans to $5 a pound for small, irregular, lightweight seeds, such as lettuce. In many cases the reduction in seed requirement more than makes up for the cost of the process. Pelleting increases the weight of the seed from four to five times in the case of cabbage or cucumber to 20 to 25 times in the case of carrots.

During the last five years we have co-operated on many trials using laboratory and commercially coated seed. Both outstanding successes and complete failure have been observed. Germination is one of the most critical stages in the life of a plant, involving many chemical changes influenced by variable temperature, moisture, and oxygen conditions for the particular crop in question. Each kind of seed has its own particular type of seed coat that plays a part in regulating these factors during germination. When an additional coat of inert materials is applied, available air and moisture conditions to the germinating seed are altered and some additional energy is required for the young plant to push through the coat. Only clean, vigorous seed with lots of vitality should be pelleted.

In most cases the seed's own coat takes up water quite readily, but the coating materials, in general, do not possess this characteristic and the necessary moisture for germination moves more slowly through them. On the basis of many tests, coated seed were found to require from one to two more days for germination than bare seed. However, this was not of any great importance if the seed pellet was protected by an incorporated fungicide to prevent infection during this slower germination.

Sufficient Moisture Required

As would be expected, pelleted seed gave a relatively better germination performance under moist than under dry soil conditions. Frequently difficulties in germination of pelleted carrot seed were related to the fact that the seed must be planted quite shallow and requires more moisture than most for germination. A well-prepared seed bed with satisfactory moisture is necessary for successful germination of carrot seed. Pelleted seed of most crops was found to germinate relatively better on muck than on mineral soil, which is probably related to better surface moisture conditions.

Pelleting is well adapted for use in

growing well spaced cabbage, cauliflower, and tomato seedlings for transplanting and is being used successfully for large-scale flat seeding with the use of vacuum equipment to pick up single seeds for spotting.

It is a difficult and tedious job to thin head lettuce properly. Tests have shown that spacing pelleted seed at one-inch intervals reduced the seed requirement by over 75 per cent and also the labor required to thin the stand. The wider spacing reduced injury at time of thinning and resulted in a higher percentage of evenly matured heads at harvest.

Direct seeding of crops including celery that are usually transplanted is being attempted in some areas to reduce labor costs. With the continued improvement in chemical weed control measures, in the near future hand weeding in the row should be virtually eliminated.

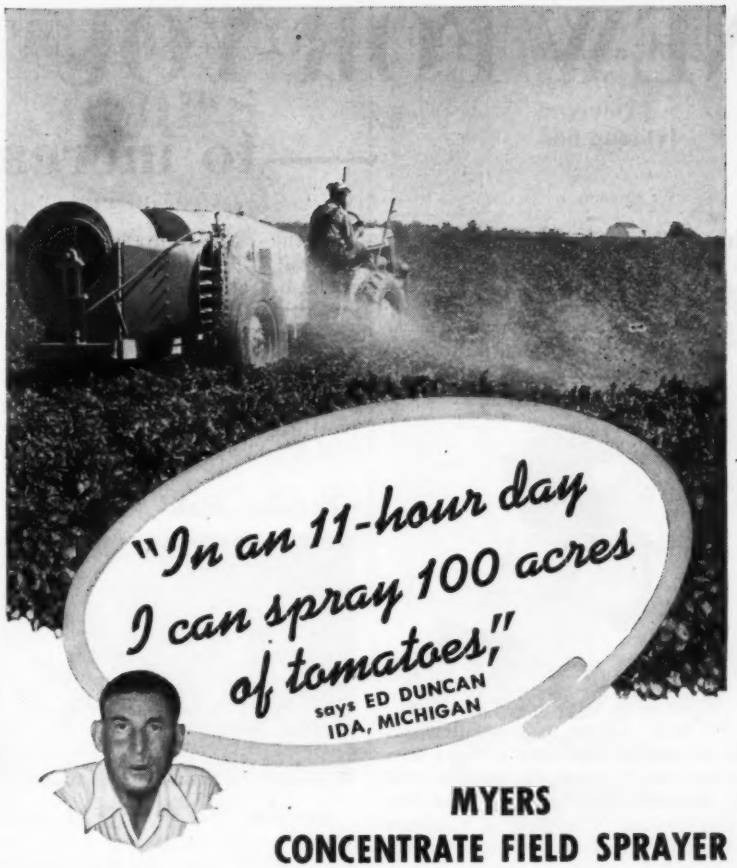
In recent tests pelleted onion seed germinated better than bare seed on both mineral and muck soil. In pelleting onion seed, large quantities of fungicide can be incorporated to reduce seedling losses from smut. The evenly spaced stand will not only result in a more uniform size of bulb but will allow better air movement around the plant and reduce the susceptibility to infection by mildew.

Although melons, cucumbers, and sweet corn can be fairly evenly spaced without increasing their size by coating, pelleted seed of these crops has shown up particularly well when planted during wet, cold periods of early spring. Germination has frequently been more than doubled by incorporating one to two per cent (based on seed weight) of a fungicide during the pelleting process.

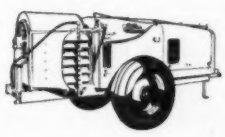
Problems with Pelleted Seed

The use of pelleted seed has not developed as rapidly as might have been expected on the basis of its desirable features. Seed houses are beset with plenty of difficulties in marketing seed that will always produce satisfactorily in the hands of the grower. If they were to market pelleted seed, their difficulties in assuring a trouble-free stand would be increased.

Problems in pelleting involve type of coat for different crops, method used in its application and drying, presence of foreign matter in the seed which becomes pelleted. At present not too many growers are equipped with planters that would allow them to do a perfect precision job of planting. Poor seed beds and dry surface soils result in poor germination of pelleted seed. However, unless some better means of facilitating precision planting is developed, the use of pelleted seed will become necessary for profitable vegetable production. THE END

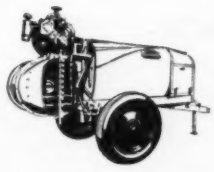


MYERS
CONCENTRATE FIELD SPRAYER



Fewer days spraying, lower labor costs, higher quality yields . . . these are a few of the reasons growers the country over are turning to Myers Concentrate Sprayers.

One man with a Myers concentrate sprayer can cover in one day what three men and a dilute rig can cover in two days.



But most important of all are the results. Growers everywhere report fewer culls and higher grade yields after using a Myers concentrate sprayer for all field crop spraying.

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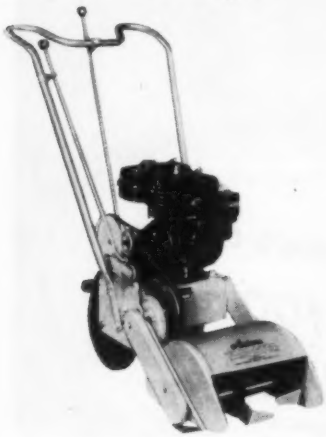
NEW FOR YOU

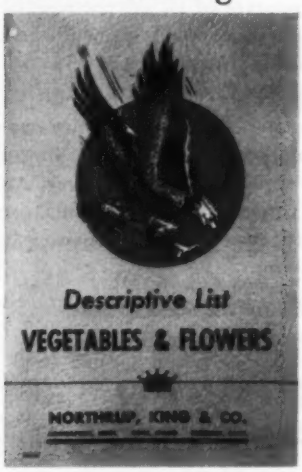
——to increase your profits

The Grower's Helper



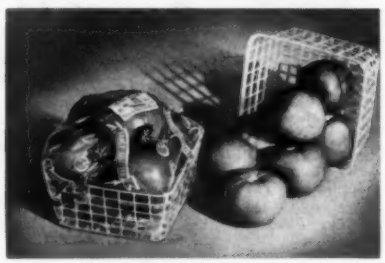
The new Ariens rotary tiller has been developed for year around use. It climaxes 21 years of development and features easy interchangeability of implements. The Ariens Yardster is available with or without wheel drive and is powered by a 2 h.p. engine that is easy to start and economical to operate. Why not become acquainted with this new model. Simply write C. I. Wilson, Ariens Company, 119 Calumet St., Brillion, Wis. He will be delighted to send you full details, without obligation.

Profitable Reading



We have just finished reading a most informative booklet of over 100 pages on vegetable varieties which is important to all vegetable growers. For example, 20 new varieties are discussed and many of the older tried and true varieties are also described in detail. The All-America selections are also featured. These descriptions are valuable to the canner, packer, processor, market gardener, or seedsman. This booklet should be part of your library, and you can have it free of charge. Just write R. D. Coursen, Northrup, King & Co., 15th Ave. N.E. & Jackson, Minneapolis 13, Minn.

"Fresher-Pak"



The new "Fresher-Pak" is a plastic container available in yellow, green, white, blue, and red. This new plastic box can be wrapped in a printed cellophane bag, capped with a small sheet held in place by a rubber band, or completely overwrapped with a full sheet of film. Growers in New Jersey are reporting success with this package. Write Cello-Masters, Inc., 1155 Randall Ave., New York 59, N.Y.

Super Tuffy

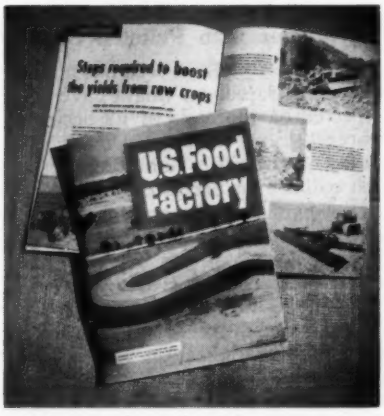
It's tough. It's rugged. It's engineered to make hard jobs easy. The Super Tuffy with all steel welded frame and with a separate clutch for attachments is an ideal tractor for use on vegetable acreage. S. L. Allen & Co., Inc., 3419 N. 5th St., Philadelphia 40, Pa., will be glad to send you full information.

Washer, Waxer

Many vegetable growers are washing and waxing vegetables for higher profits. John Bean has just announced the introduction of a washer-absorber (above left) and a waxer (right) for the small grower. The unit performs beautifully and is economical to operate and built to last.

Both machines have capacities ranging from 100 to 170 bushels per hour. Why not write Eldon Robbins, John Bean Div., Food Machinery & Chemical Corp., Box 840, Lansing 4, Mich.

Food Factory



Five people to feed for every four now eating. That is the prediction for things to come in 1975 by our Government. International Harvester is taking positive steps to insure the development of proper equipment for you. We urge you to write Leonard Owen, International Harvester Co., 180 N. Michigan Ave., Chicago 1, Ill., for a copy of "U. S. Food Factory."

VARIETIES YOU SHOULD KNOW

Burpee's Big Boy Giant Hybrid Tomato

Largest of the Burpee Hybrids—the tomato for the particular trade, a true F_1 hybrid. Huge, perfectly smooth, firm, red fruits that bring maximum returns on both roadside stands and the market.

Many weigh 1 lb. or more; average size 10 ozs. At its peak in midseason but keeps on bearing large fruits after many varieties decline in both yield and size. Does well either staked or not.

Every grower needs Big Boy. A trial planting will convince you. Complete information and low growers' prices mailed on request.

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MANAGER, MARKET GROWERS DIVISION

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VHPF
(pronounced "VIP")
6-25-15
plus essential secondary elements
6 lbs. treats 1 acre

1. VHPF is the finest starter solution formula available and supplements the regular fertilizer program.
2. VHPF replaces nutrients lost by heavy rains or adverse growing conditions.
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4. VHPF improves quality, color, and yield.

Write for booklet
MILLER CHEMICAL & FERTILIZER CORP.
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PRODUCTION GUIDES

ACREAGE and production guides for 17 spring vegetables to be marketed in fresh form principally during April, May, and June, 1954, and for 1954 early commercial potatoes have been announced by the USDA.

The sum of the acreage guides for the 17 spring vegetables is 469,550 acres. This is 7 per cent less than the acreage harvested in 1953 but slightly more than the acreage harvested in 1952. The 1954 early commercial potato acreage guide is 210,900 acres. This is 24 per cent less than the sharply increased 1953 acreage but only 4 per cent less than the acreage planted in 1952.

The 1954 spring vegetable guides suggest acreage increases for late spring snap beans, beets, late spring cucumbers, shallots, and late spring tomatoes. Acreage decreases are suggested for early spring cabbage, carrots, early spring lettuce, early and late spring onions, green peppers, early spring tomatoes, and watermelons. No change in acreage is suggested for lima beans, early and mid-spring snap beans, late spring cabbage, cantaloupes, cauliflower, celery, early spring cucumbers, green peas, and spinach.

Acreage Descreases for Potatoes

The 1954 acreage guides for early commercial potatoes suggest acreage decreases of 35 per cent for the winter group, 25 per cent for the early spring group, 30 per cent for the late spring group, and 5 per cent for the summer group. Exceptions in the last two groups are South Carolina and Texas with suggested decreases of 10 and 50 per cent, respectively.

If production is in line with 1954 guides and if marketings follow a normal time pattern for the season, supplies should be in balance with needs at a continuing high level of economic activity. The 1953 production of spring vegetables (excluding potatoes) was 6 per cent more than in 1952 but prices generally were below the 1952 levels while grower cost continued high.

Early commercial potato prices were sharply lower in 1953 than in 1952 and production was 28 per cent greater than in 1952. Consideration has been given in the guides for early commercial potatoes in 1954 to the prospective storage supplies that will be available from the 1953 late crop to compete with the early commercial crop marketings in the winter and spring months of 1954. THE END

You can MEASURE the difference in yields and quality!

VIGORO* COMMERCIAL GROWER

. . . a special formula geographically adjusted for the soils in your area

Vigoro for Commercial Growers is made to supply the maximum nutrient requirements of high value crops. All needed nutrient elements are skillfully balanced in maximum ratio to each other. Predominating soil types in your area have also been considered in its formulation.

With Vigoro CG you get maximum yields that command top of the market prices. For full information, just drop us a card, mentioning your special crops. Address:

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*Vigoro is the trade-mark for Swift & Company's complete, balanced plant food.

OPPORTUNITY ADS

Only 25c a word for one-time insertion; 20c a word for two-time insertion; 15c a word for four-time insertion—CASH WITH ORDER. Count each initial and whole number as one word. ADDRESS AMERICAN VEGETABLE GROWER, Willoughby, Ohio.

AGENTS WANTED

RUN A SPARE-TIME GREETING CARD AND GIFT shop at home. Show friends samples of our new 1954 All-Occasion Greeting Cards and Gifts. Take their orders and earn up to 100% profit. No experience necessary. Costs nothing to try. Write today for samples on approval. REGAL GREETINGS, Dept. S, Ferndale, Michigan.

AUTHORS SERVICE

BEGINNING WRITERS: GET $1 TO $20 CHECKS daily writing simple children's stories, articles, poetry in your spare time. Experience unnecessary. Our instructions reveal how. Details FREE. W. HERMAN, 7016 Euclid, Cleveland 3, Ohio.

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GROW MUSHROOMS. CELLAR, SHED, SPARE, FULL time, year round. We pay $3.50 lb. We paid Babbitt $4,165.00 in few weeks. FREE BOOK. WASHINGTON MUSHROOM IND., Dept. 127, 2954 Admiral Way, Seattle, Wash.

NEW PLASTIC MENDING TAPE. JUST PRESS ON! Repairs clothing instantly. Lightning seller. Samples sent on trial. KRISTEE 100, Akron, Ohio.

CIDER MILLS—PRESSES

CIDER AND WINE PRESSES, HAND AND HYDRAULIC, new and rebuilt. Repairs and supplies. Clarifier and Filters. Bottling equipment. Write for catalogue. W. G. RUNKLES' MACHINERY CO., 185 Oakland St., Trenton, N. J.

DUCKS AND GEESE

DEPENDABLE INCUBATORS FOR HATCHING DUCK and goose eggs. All sizes. Guaranteed Hatching Eggs from Magnificent Rouen Ducks, massive in size, Four Varieties Geese, also Guineas. Illustrated Folder Free. GOSHEN POULTRY FARM, Goshen, Indiana.

FOR SALE—BUSINESS

TREE SURGERY AND LANDSCAPING BUSINESS, with or without equipment, a gold mine for right parties. TREE SERVICE, Box 705, S. Norwalk 17, Conn.

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1953 MODEL 36-L SPEED SPRAYER, VERY LITTLE use. 1953 35-T Bean Sprayer. CORY ORCHARDS, Cory, Ind.

ANY PART OR ALL OF 15,000 WOOD FIELD BOXES 24" x 9¼" (wide) x 4⅝" deep and 32" x 12" x 12" inside dimensions. In nearly new condition. Write for quotation, give quantity and size required. From one of the world's largest dealers in almost-new wood boxes. BARNES & SMITH CORPORATION, 6520 West State Street, Milwaukee 13, Wis.

RECONDITIONED HIGH PRESSURE SPRAYERS, PTO or engine, several sizes. Also used blower attachments. RILEY'S, Phone 425, Hart, Michigan.

WOODEN KEGS AND BARRELS—SAVE BY BUYING directly from largest wholesaler in U. S. Widespread plants mean lower freight charges. MASLOW COOPERAGE CORP., 16 Court St., Brooklyn, N. Y.

LATE MODEL SPEED SPRAYER FOR SALE. ANY reasonable offer. BOX 54, Fairhope, Ala.

CONCENTRATE SPRAY RIG. ENGINE DRIVEN Hardie 35, 400-Gal. Tank. 25 HP Aqua-Jet Blower used one season at 3X and 4X. Good condition guaranteed. Want to buy used Hale Sprayer. JAMES DEAN, Rt. 2, Geneva, Ohio.

50 GAL. TRAILER TYPE, HARDIE SPRAYER, 500 gal. tank. Fully equipped, in perfect condition. A bargain. WELDAY'S ORCHARD, Smithfield, Ohio.

VEGETABLE SEEDS

CAN SUPPLY PREMIER GREAT LAKES, 428, AND regular Great Lakes Lettuce Seed at attractive prices. Also Long Type Imperator and Regular Imperator Carrot Seed. GEORGE LOOMIS AND SONS, P. O. Box 367, Hemet, Calif.

MEDICAL

FREE BOOK—PILES, FISTULA, COLON-STOMACH, associated conditions. Newest scientific procedures. THORNTON & MINOR HOSPITAL, Suite C-112, Kansas City 9, Mo.

Karl C. King, owner, King Farms in Pennsylvania, was a featured speaker at VGAA convention.

VGAA LOOKS TO 1954

(*Continued from page 12*)

secretary of the National Potato Council, which is establishing new offices in Washington, D. C., told about plans for potato promotion.

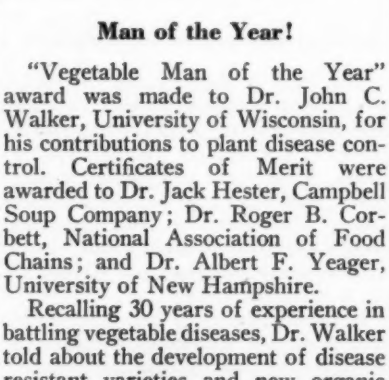
Films of last season's National Vegetable Week were also shown. Publicity chairman Max Chambers announced that plans for National Vegetable Week for 1954 are underway.

Selected National Vegetable Queen from six state queens, all of whom were at the convention, was Elaine Kernan of Bridgeton, N. J.

Man of the Year!

"Vegetable Man of the Year" award was made to Dr. John C. Walker, University of Wisconsin, for his contributions to plant disease control. Certificates of Merit were awarded to Dr. Jack Hester, Campbell Soup Company; Dr. Roger B. Corbett, National Association of Food Chains; and Dr. Albert F. Yeager, University of New Hampshire.

Recalling 30 years of experience in battling vegetable diseases, Dr. Walker told about the development of disease resistant varieties and new organic fungicides. Diversity in choice of materials to meet various crops and vari-



Paul Dickman, VGAA board of directors member, spoke on equality for vegetable producers.

Books for Your Home Library

DISEASES OF VEGETABLE CROPS *by John C. Walker.* The book thoroughly covers the diseases of such vegetables as asparagus, beans, celery, onions, etc. Each disease is discussed in regard to symptoms, cycle of development, and methods of control. It contains 629 pages and is well illustrated....$7.50

VEGETABLE CROPS *by Homer C. Thompson.* An up-to-date book which covers such subjects as plant nutrition, weed control, nutritional value of vegetables, recent advances in handling and marketing vegetables, cultivation, irrigation and storage. The book contains 611 pages and many illustrations. $6.75

THE TOMATO *by Paul Work.* Here is a practical treatise on the tomato which is for the amateur as well as the large commercial grower. It includes discussions on characteristics; methods of planting; fertilization; cultivation, points about harvesting, packing, storing and marketing; as well as insects and diseases which attack the tomato. This illustrated book contains 136 pages. $2.50

USING COMMERCIAL FERTILIZER *by McVickar.* Here is a book which gives information on what fertilizers should be used and how they should be used for most efficient production. $3.00

GARDEN SOILS *by Arthur B. Beaumont.* This book is written especially for the home gardener. The author has presented soil and plant science in simple language. A glossary of scientific terms can be found at the end of the book for the benefit of those unfamiliar with them. Illustrated, the book contains 280 pages. $4.00

AMERICAN TOMATO YEARBOOK *edited by John W. Carncross.* The new 1953 edition contains much information which is of interest to the tomato grower, dealer, and shipper—all those who are vitally interested in the tomato industry. It contains an up-to-date list of recent references to tomato culture and diseases and pests and their control plus helpful information on prepackaging, use of hormones, and grade requirements for canning and processing. Profusely illustrated, the book contains 40 pages. $2.00

Books sent postpaid on receipt of check or money order.

AMERICAN VEGETABLE GROWER

Reader Service Department

Willoughby, Ohio

ous growing conditions is the trend, he said.

On factors influencing the yield of canning crops, Dr. Hester pointed out the importance of maintaining vigilance throughout the growing season to assure properly adjusted soil conditions regardless of weather conditions.

Plant More Midgets!

Dr. Yeager told about his work of breeding new varieties. He described the New Hampshire Midget watermelon which will fit between the shelves of the refrigerator and called on more northern growers to produce the new melon. It is popular in the South.

A. W. Chambers, secretary of the Utah State Canning Crops Association, an organization of 5,000 members who have joined together to deal with canners, called for the formation of a processing vegetable association to work on a national basis with canners. THE END

TREATING POX INFECTED FIELDS

FIELDS that produced sweetpotatoes infected with Pox should be marked off by the growers now so that they can be treated or avoided the next planting season. In the last few years I have found that Pox, which is a common disease in some sweetpotato growing sections, damages the appearance of the potatoes and reduces their salability.

The only known control for the disease at present is sulfur. Dr. R. H. Daines, sweetpotato disease specialist at the New Jersey Agricultural Experiment Station, is carrying on numerous tests in the hope of developing a better method of treatment. I have found it best to avoid planting sweetpotatoes in fields that are subject to Pox.

Sometimes only small areas in a field are infected with the disease. The grower then is able to treat those small areas with sulfur and to plant the entire field without running into Pox difficulties.

Before applying the sulfur it is advisable to have a test made to determine the pH of the soil. The amount of sulfur to apply may vary from 100 to 300 pounds per acre. I have never made an application of more than 250 pounds per acre. The easiest way I have found to apply the sulfur uniformly is to spray it on the soil with a power sprayer. This has worked well with me for the last two years. I saw no Pox in 1953 at digging time. Now I am going to plant lima beans in my fields for at least two years and will broadcast lime and sulfur in the early spring before planting. THE END

SPRAYING SYSTEMS BoomJet SPRAY NOZZLES

up to 66 feet WIDE with one compact assembly

Easily mounted on tractor rear. Low cost unit for use where spray boom accuracy is not needed. Sprays to both sides or one side only. **Designed** by Spraying Systems Co. . . . producers of TeeJet Spray Nozzles. Made in all brass for general spraying and all aluminum for spraying liquid fertilizers. Write for Bulletin 66.

for better spraying at lower cost also ask your dealer for

SPRAYING SYSTEMS TeeJet SPRAY NOZZLES

Famous for proved performance. Gives you the most from equipment and chemicals. Choice of over 400 interchangeable orifice tips for every spraying need.

SPRAYING SYSTEMS GunJet SPRAY GUNS

Heavy duty spray guns, precision built. For pressures from 30 to 800 pounds. Adjustable spray.

HOW SOLD . . . Spraying Systems Co. products are supplied by leading original equipment manufacturers and their dealers everywhere.

SPRAYING SYSTEMS CO. 3232 Randolph Street • Bellwood, Illinois

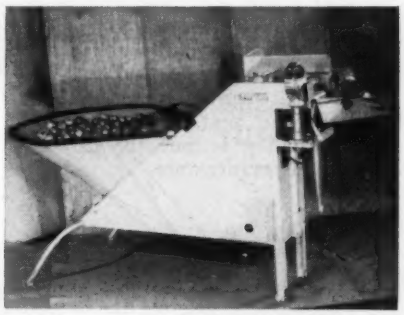
TRESCOTT

Single Head Hopper Model

AUTOBAGGER

This complete electric unit automatically fills and weighs any type bags from one to fifteen pounds. Will pack 14 bags per minute of 3 lb. onions. Hopper holds 150 lbs. Fills paper, Polyethylene, cellophane or mesh bags. Requires little floor space, one person can move it. Price complete, $806.00.

Write today for complete information



The TRESCOTT Co., INC. Dept. K Fairport, New York

BOOKS FOR YOUR HOME LIBRARY

VEGETABLE GROWING *by James S. Shoemaker.* Discusses individual vegetables, time and depth of planting, harvesting, and marketing. Every vegetable grower should have this 515-page, well-illustrated book in his library. $6.00

FARM MECHANICS TEXT AND HANDBOOK. An encyclopedia of shop and mechanical jobs for the farm. Information on tools, machinery, motors, wiring, and painting are contained in its 774 pages. $4.50

Books sent postpaid on receipt of check or money order.

AMERICAN VEGETABLE GROWER

Reader Service Department

Willoughby, Ohio

"I Love to Garden with my ROTO-HOE"

ROTO-HOE GARDEN TOOLS

Yes, ROTO-HOE is so easy to operate that women enjoy using it too. And it's easy to buy—still selling at the low, low, 1947 price, due to the tremendous customer acceptance it has earned—ROTO-HOE complete costs only $134.

EXTRA DIVIDENDS.

Not only is ROTO-HOE first cost most modest, but there is a complete line of attachments all using the same basic power unit, all easily and quickly interchangeable in minutes. All are thoroughly engineered and "field-proven" and the cost is amazingly low. You can pump, spray, saw wood, throw snow, mow, trim and edge lawns as well as cultivate and till gardens.

GET THE FACTS

ROTO-HOE's nation wide distribution means there's a dealer near you. Write today for free color catalog and nearest dealer's name.

ROTO-HOE & SPRAYER COMPANY

Box 53V Newbury, Ohio

Why Do It Wrong?

MOST of us who make our living from growing vegetables must perform many jobs for the first time. We have had no previous experience when we lay out a packing shed, install sprinklers, build a storage, plan a roadside market, or handle numerous other things which are strange because we have not done them before. So we make mistakes and we would do the jobs differently if we could do them over again.

In nearly every case some other grower has had the experience which we need. Someone has done what we are trying to do and could give us a lot of good advice. Most likely that vegetable grower is a reader of AMERICAN VEGETABLE GROWER and his experience would be invaluable to other growers.

If there are certain jobs you have attempted which you wish you could do over again, why not send an account of your experience to us? Who knows, perhaps we will publish ideas from another grower that will save you a great many unnecessary headaches in your next project. After all, good planning is half the battle of successful performance.

Tried and True

AT the end of the old year and the beginning of the new we like to pause and view in retrospect the good and the bad that has transpired during the past year, to measure the work that was done or left undone, to think of friends, old and new. And it is in this mood that we think of our good friends the county agents or farm advisors.

Surely the vegetable grower has no greater friend than the county agent of his state extension service. Here is a steadfast individual who knows the benefits and the problems of vegetable farming. The county agent is looked to as a source of unbiased and nonpartisan information whenever the need for advice and assistance arises.

The knowledge that, outside of his own intimate circle, there is a friend to whom he may turn, is a pleasant thought for the vegetable grower to carry into the New Year.

Not only does he serve as a bank of practical knowledge but he is active in promoting better production and marketing practices. He takes the lead and the burden of keeping local grower associations going strong and puts in plenty of work after regular hours on these jobs.

Our county agent friends are human and sometimes make mistakes. But it is pretty difficult to diagnose and correct all the troubles plants possess in this day and age when so much new knowledge has become available so quickly.

Many county agents have shown themselves able to adapt quickly and take advantage of modern devices. We admire the county agent in Massachusetts who has his car equipped with a radio phone to better keep in contact with growers and to be more quickly responsive to their calls. We admire also those county agents that arise before milking time even to make their way to radio stations to broadcast latest weather and pest information. All in all, the county agent is a pretty versatile fellow and worth many times more than his salary would indicate.

Turtilized Tomatoes

EDITOR Andrew A. Duncan of the Maryland Vegetable Growers *Newsletter* has coined a new word in reference to tomatoes. He says that a vegetable grower and a poultryman got mixed up in a legal dispute. The accusation was that chickens were eating tomatoes. The defense claimed that turtles were causing the damage. Inspection by college scientists showed the chickens were at fault, and the terrapins went scot-free. So don't be misled if you ever hear again of turtilized tomatoes—it's all the chickens' fault!

Looking to 1954

FROM all indications the 1954 market season for the vegetable growers of the nation is going to be a little tougher than was 1953. A closer watch on expenses and a closer study of markets and marketing conditions will pay many growers well.

Now is the time to begin planning for the later marketing season for the various vegetable crops you are producing. You can check to see if you are getting all the service entitled to you from your local Market News Service as well as periodical reports on production and market conditions of those crops in other areas of the country. Just keep up-to-date on marketing. This kind of study can also help you determine how many acres of a given vegetable you can grow and market profitably this year.

Where and how to begin to cut expenses is a question with no easy answer. Vegetable growers utilize more labor per acre than any other type of farmer, and this could be a place to begin. Mechanization of certain jobs is one way to reduce labor expense. Using herbicides to control weeds in place of hand hoeing is another. Using the newer and more effective insecticides and fungicides may reduce the number of applications. Some jobs that formerly required two or three men can now be done with one man through improved machines. There are cases where improved machines have reduced the field harvest labor from 50 to six, a comparatively big saving.

Now is the time for us to have our mechanics working on overhauiing, perfecting, and improving various pieces of equipment. Work done now may mean a saving in both labor and time next growing season. Put your ingenuity to work now, as well as later.

From the Sublime to the Ridiculous

THE other day we picked up this little analysis of census figures.

Population of the U. S.	153,000,000
Those over 65	41,000,000
Left to do the work	112,000,000
Those under 21	54,000,000
Left to do the work	58,000,000
Government employed	25,000,000
Left to do the work	33,000,000
In the armed services	10,000,000
Left to do the work	23,000,000
In state or city work	19,000,000
Left to do the work	4,000,000
In hospitals or asylums	3,800,000
Left to do the work	200,000
Bums who won't work	175,000
Left to do the work	25,000
In pens and jails	24,998
Left to do the work	2

You and I, and I'm getting tired!

Perhaps this is the final explanation for our difficulties in securing the necessary labor on our farms. But don't take it too seriously.

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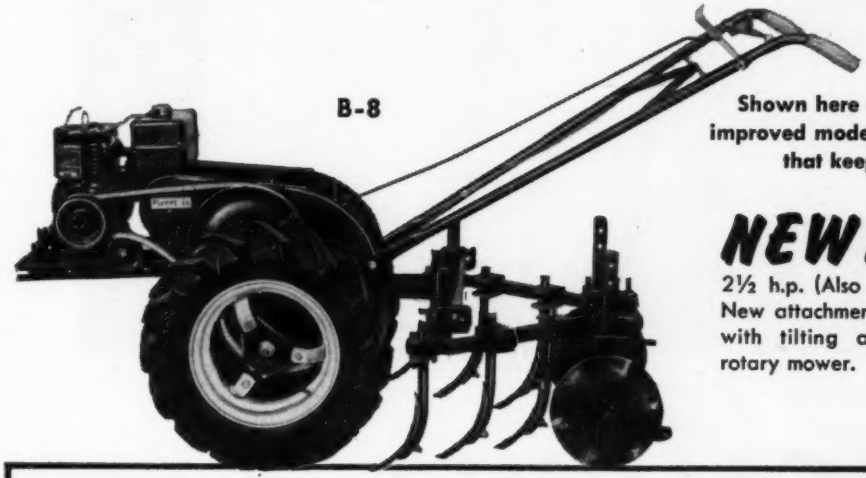
The Planet Jr. name on agricultural and gardening implements has been a familiar symbol of dependability for over 80 years. It is not surprising, therefore, that the most efficient garden tractors of today bear it as a guarantee of outstanding workmanship and performance. On your own farm, you can be sure of greater results at lower cost when your equipment bears the name, "Planet Jr." . . . the first name in tractors.



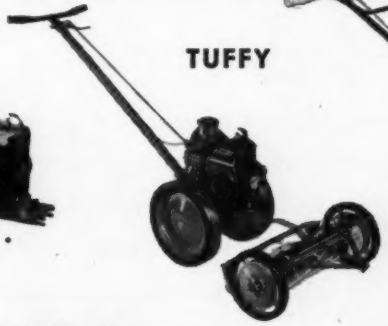
B-8

Shown here are a few of the new and improved models that typify the progress that keep the Planet Jr. name first.

NEW! Reverse power for the popular model B-8, 2½ h.p. (Also available without reverse.) New attachments include 20" power saw with tilting arbor, rotary tiller, and rotary mower.

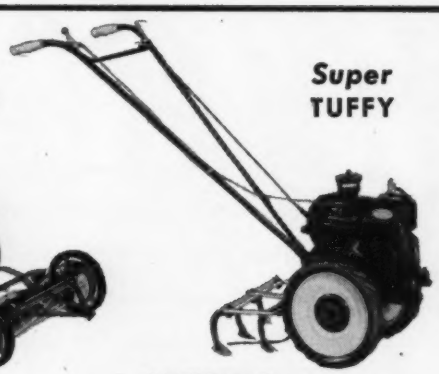
BP-1

NEW! BP-1, 2 h.p. with many engineering improvements for greater efficiency. New power saw, rotary tiller and rotary mower attachments.



TUFFY

NEW! Tuffy—just over a year old and still causing excitement among dealers and customers everywhere. 1 h.p. with cultivator, trailer cart, snow plow and grader, lawn seeder, vegetable seeder, rotary mower, rotary tiller, lawn mower hitch.



Super TUFFY

NEW! Super Tuffy, with new design, new power, new attachments. 1½ h.p., tubular steel handles, all steel frame, ground-gripper tires, fingertip controls—all Tuffy attachments.

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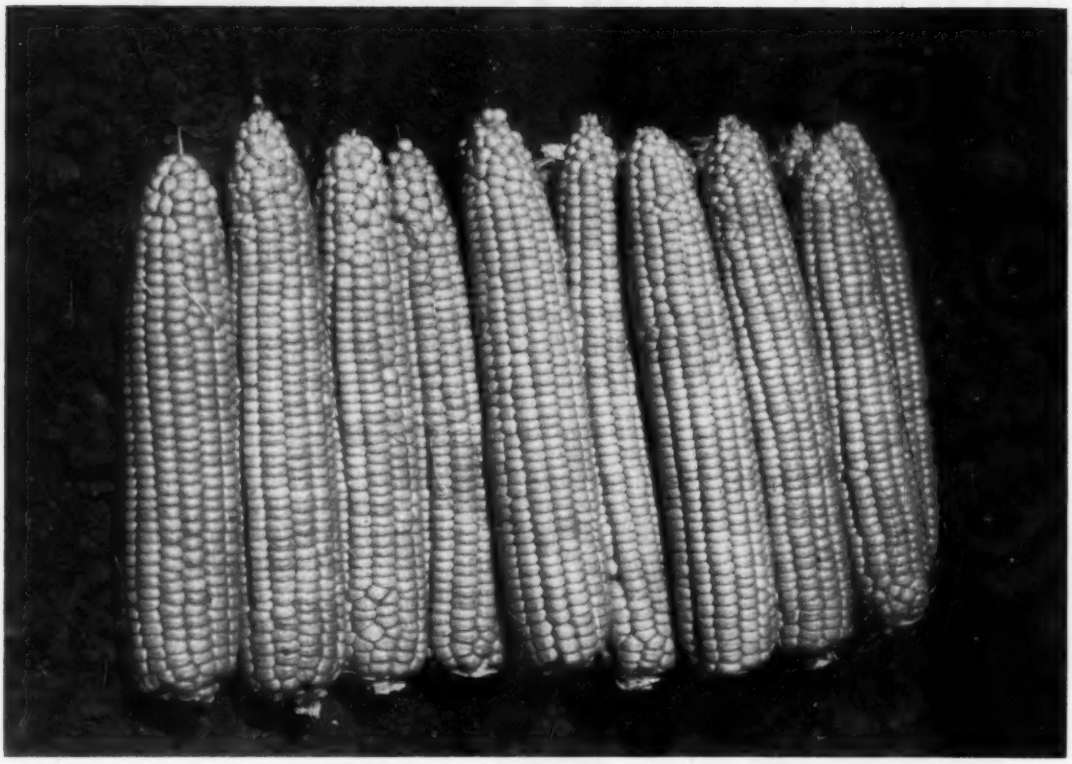

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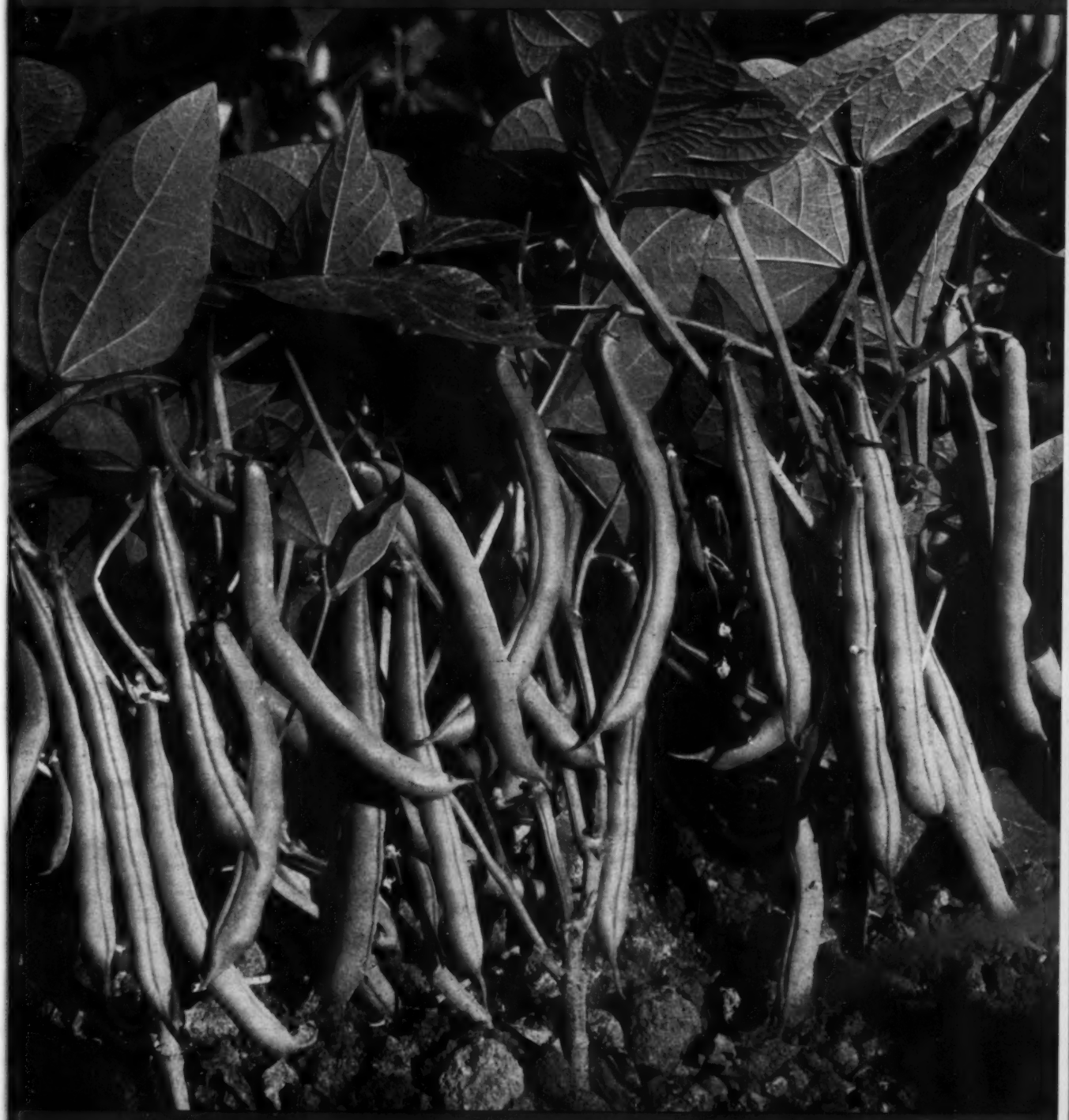

THE VEGETABLE HYBRID PICTURE

If it grows in rows...

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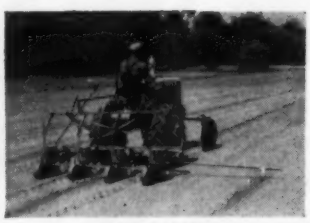
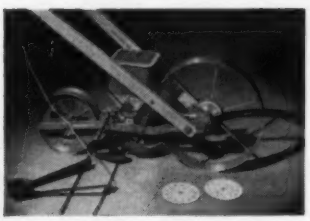
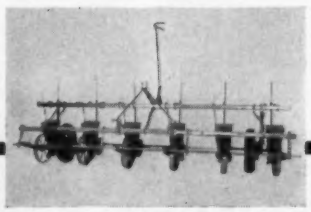
Whether it's weeping lovegrass, with over a million seeds per pound, or small limas, with just a few hundred, Planet Jr. seeding equipment will plant it easier, more accurately. In the popular 7135X seeding units, seed is sown through numbered holes in a plate, assuring precisely the distribution you want, whether using single seeders, or several in a gang. Moreover, a wide choice of depth-regulating opening plows, follower wheels and weights, permit adjustments to meet every soil condition. Used in combination with husky Planet Jr. tractors, 1, 1½, 2, or 2½ h.p. models, you have a seeding combination that cannot be surpassed for ease of operation, reliability, or uniformity of results. It's not surprising then that Planet Jr. seeding equipment is used and preferred by the majority of commercial growers.



7135X Seeder



300A Single-Row Hand Seeder



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VEGETABLE GROWER

REG. U. S. PAT. OFF.

(Commercial Vegetable Grower)

Vol. 2 FEBRUARY, 1954 No. 2

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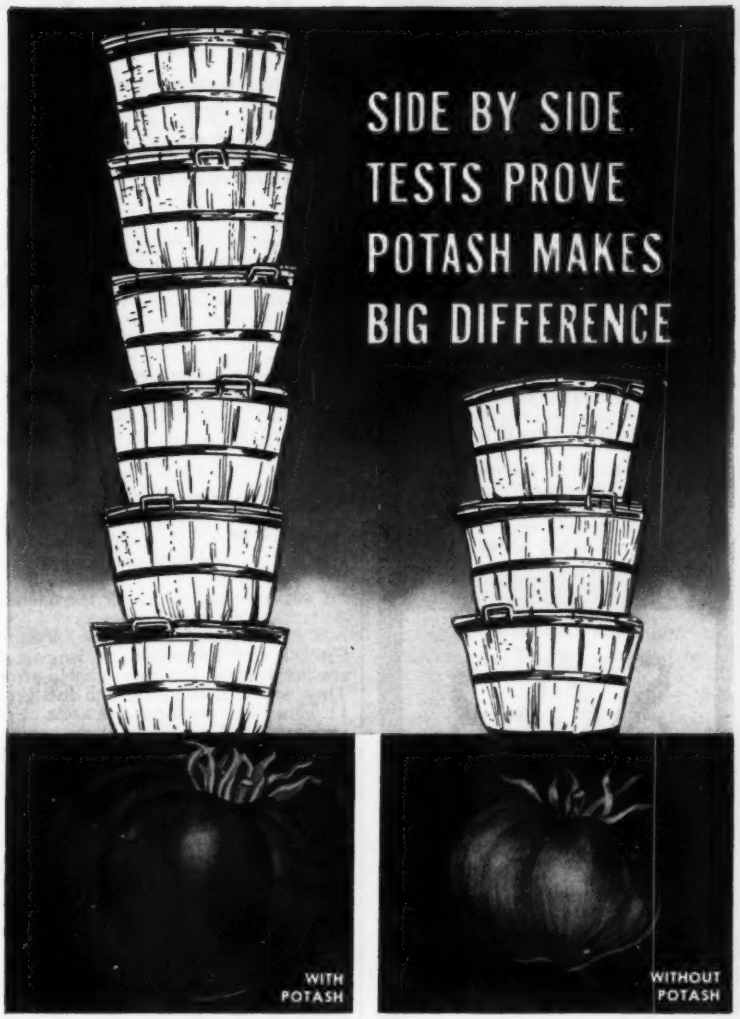

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Tomatoes, potatoes, onions, sweet corn . . . in fact all vegetables thrive when they get enough Potash in their diet. They grow strong, resist disease, give higher, more choice yields . . . the kind that bring top market prices . . . give you the biggest profit.

So, to keep profits up, to increase yields and to lower unit costs of production, use fertilizers with plenty of Potash. To find out the right amount of Potash for your particular crop and soil conditions, consult your agricultural adviser.

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LETTERS TO THE EDITOR

Widespread Interest in Onion Harvester

Dear Editor:

You will be interested to know that the brief story of ours which you carried on the onion harvester in a recent issue of AMERICAN VEGETABLE GROWER illustrates how very widely your magazine is read.

The owner of the machine told me that he had received letters and telephone calls from more than a dozen different sections of the country, ranging from Michigan and Indiana to Texas and California.

Silverton, Ore. Lillie Larsen

Finds AVG Instructive

Dear Editor:

I am enclosing my check for renewal to AMERICAN VEGETABLE GROWER.

I have found AMERICAN VEGETABLE GROWER very instructive. As long as there are people there will be vegetable growers. They will tend to divide into two groups: 1) Those who are located in areas of dense population and sell direct to the consumer; and 2) those who operate in areas of sparse population, work on an extensive scale of land and machinery, and depend on others to sell their product.

Both groups can be successful if they are fully aware of their respective advantages and limitations and keep informed of each others operations. If their operations complement each other rather than compete with each other all will be well. A haphazard competition can be disastrous to both groups.

AMERICAN VEGETABLE GROWER, in my opinion, has given more information of the above nature than any other farm paper. The man who knows how, when, and where he is going to sell his product can't go far wrong. More power to you!

Eastford, Conn. Edward R. Floeting

Controlling Sprouting in Onions

Dear Editor:

Can you give me some information on a spray that will control sprouting in onions? Do you know where I can buy it?

Saginaw, Mich. Carl E. Rice

Contact Allen Trask, U. S. Rubber Company, Naugatuck Chemical Division, Naugatuck, Conn., for the closest supplier of maleic hydrazide or MH-40 to control sprouting in onions.—Ed.

Wants Addresses of Harvesting Machinery

Dear Editor:

I have been asked by the director of agricultural engineering research of the USDA, Beltsville, Md., to gather information regarding all available vegetable harvesting machinery, either sold commercially or in experimental stages, which I can find. In view of this I would appreciate very much receiving any information which you may have now or may receive in the future, either literature or address references, on harvesting machinery which you may know about.

Shafter, Calif. H. F. Miller

If any of our readers have any harvesting machines which are in experimental stages or which they are now using, you can write directly to Mr. Miller at the following address: U. S. Cotton Field Station, Route 1, Box 17, Shafter, Calif.—Ed.

Stress Farm Safety With Children

Dear Editor:

The files of the National Safety Council contain far too many stories of the tragedies resulting from children riding upon or operating intricate farm equipment. Children have neither the strength nor the judgment to cope with emergency situations, especially with power equipment. There are other hazards, also, that bring about needless accidents to children.

The National Conference for Farm Safety has been studying this problem for several months and plans are being made for long-range emphasis on child safety as related to agriculture. This will include not only the farm machinery aspects of the problem, but also all phases of farm life affecting child safety.

The following four-point program has been suggested:

1) Secure better statistics on child accidents.

2) Prepare materials for use in child accident prevention programs.

3) Greater publicity, to include radio and television.

4) Recognition for results achieved in this field.

The Farm Division of the National Safety Council believes coersion and compulsion are not satisfactory substitutes for education. But persistent violation of common sense practices is the surest way to bring about undesirable legislation. The Farm Division sincerely hopes that through effective farm safety education parents and others will realize the importance of adequately protecting children against unnecessary hazards.

National Safety Council
Chicago 11, Ill. Maynard H. Coe

Potato Seed Cutting Machines

Dear Editor:

Could you give me information on some good potato seed cutting machines? I would appreciate having their names and addresses.

Wasco, Calif. G. A. Wittmayer

Following are a few companies which you might contact: Troyer Manufacturing Co., Smithville, Ohio; Singer Manufacturing Co., Smithville, Ohio; Lockwood Graders, Inc., Gering, Neb.; Midway Machine Co., Albert Lea, Minn.; and Hise Manufacturing Co., Gering, Neb.

The VEGETABLE Situation

ACCORDING to the USDA, production of commercial vegetables for fresh market during the winter season of 1954 will be only slightly smaller than last year. Cabbage, carrots, and celery show the greatest tonnage reductions.

Growing conditions in Florida, due to low temperatures, were generally unfavorable for vegetables. Practically all crops in this state show reduced yield prospects. As a result of several heavy frosts in late December in California, several crops were adversely affected.

SNAP BEANS

Florida crop will be 11 per cent under that of last year, according to estimates. Early winter acreage in Everglades is in poor condition as a result of adverse weather in December.

BEETS

Indicated production is somewhat under that forecast earlier. Unseasonably cool weather in December caused top damage and resulted in slow growth for young plantings in Texas. Unfavorable market conditions have resulted in some economic abandonment in the form of partially harvested fields.

BROCCOLI

Prospects for the winter crop are good. In Texas, the crop is reported in good condition in all areas. Movement in good volume is expected through March.

CABBAGE

Prospects for the winter crop have declined because of lower yields in Texas and Florida. In Texas, cold weather during the latter part of December retarded growth, causing small heads. Reduced yields in Florida were caused by the low temperatures in mid-December and excessive moisture in some sections.

CAULIFLOWER

Production is indicated at slightly under that of last year. Adverse weather conditions in Florida contributed to the reduced yields. Texas crop is in good condition and harvest is active.

CELERY

Crop is expected to be somewhat under that of last year. Inadequate rainfall has been reported from California and is expected to reduce yields; and because of unfavorable weather, the Florida crop will be under that predicted earlier.

SWEET CORN

Harvest from Florida will probably be a little above last year's. An active harvest is predicted for the Everglades area during March.

LETTUCE

Production will be about the same as last year. In Arizona and California, cold weather the latter part of December curtailed cutting and resulted in smaller sizes. Harvest in Texas will be fairly active during February. Prospects declined in Florida, partly from wide fluctuations in temperatures and partly from excessive rains in some sections. Younger plantings in that state are making fair progress.

ONIONS

Preliminary estimate of early spring onion acreage in southern Texas is 39,500 acres. This is 13 per cent above acreage indicated earlier but is 15 per cent less than acreage planted and harvested in 1953. Conditions were favorable for both seeding and transplanting of the 1954 acreage. Moisture was ample in all areas.

Planting intentions for the late spring crops indicate smaller acreages than last year in all states except Texas. In California, almost all areas are in need of rain, and some places are now irrigating.

EARLY POTATOES

Winter crop is estimated at 25 per cent less than last year's record output. In Florida, acreage is down substantially. In Texas, growth of winter potatoes was virtually terminated by frost in late December.

SPINACH

Production will probably be about the same as last year. In South Carolina, condition is reported as fair to good. Cold weather in Texas has slowed growth to some extent.

Malathion*

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1. High insect toxicity

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3. Compatibility

4. Quickly disappearing residues

After years of testing by state and federal authorities and actual grower use, malathion has been called "the most promising new insecticide."

Here's why:

Extremely effective against aphids and mites as well as many other insect pests on a wide variety of crops.

Much more toxic to insects than to mammals. The USDA calls it "one of the safest insecticides to handle." Necessary precautions for safe handling similar to those for DDT.

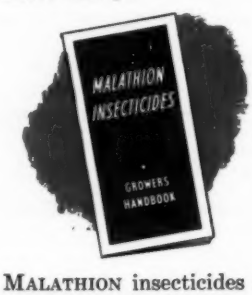
Compatible in spray tank with most other spray materials.

Residues on crops disappear quickly. On most crops malathion residues are less than 1.0 part per million ten days after last application.

Malathion controls aphids on cabbage

Reports from Maryland growers show that they have obtained good control of aphids on cabbage, using a 4% malathion dust.

Malathion is another product of American Cyanamid research, designed to help you farm more profitably, more easily.



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MALATHION insecticides are available from well known manufacturers. Consult your local agricultural authorities for suggestions on dosages and application procedures.

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Carrots grown on root knot nematode infested muck land; left, from fumigated area; right, from unfumigated area.

Thrifty Plants with SOIL FUMIGATION

Soil-borne pests which cause plants to be poor producers can be economically controlled

By C. E. DIETER

The Dow Chemical Company

NEMATODES are becoming increasingly more important factors in vegetable production by reducing the quantity and quality of marketable produce. The losses they cause have often been attributed to other factors, such as plant diseases, deficiencies or imbalance of plant nutrients, poor seed or varieties, lack of water and unsatisfactory growing conditions. The practice of growing susceptible crops on the same land year after year has increased the danger of nematode loss to the vegetable growers in many areas. The host range for many plant parasitic nematodes is not known, thus crop rotation may aid in suppressing certain types of nematodes but at the same time favor the development of others.

The transfer of vegetable transplants and potato tubers may carry nematodes from one field to another. When conditions are proper for nematode development the entire field may become affected after a period of years, resulting in reduced production.

Nematodes cause various types of root injuries that interfere with the normal uptake and translocation of essential plant nutrients and water. In some cases the damage caused by light infestations of nematodes can be somewhat reduced by the application of additional fertilizer and water. However, under conditions of heavy infestations little benefit can be derived from such practices.

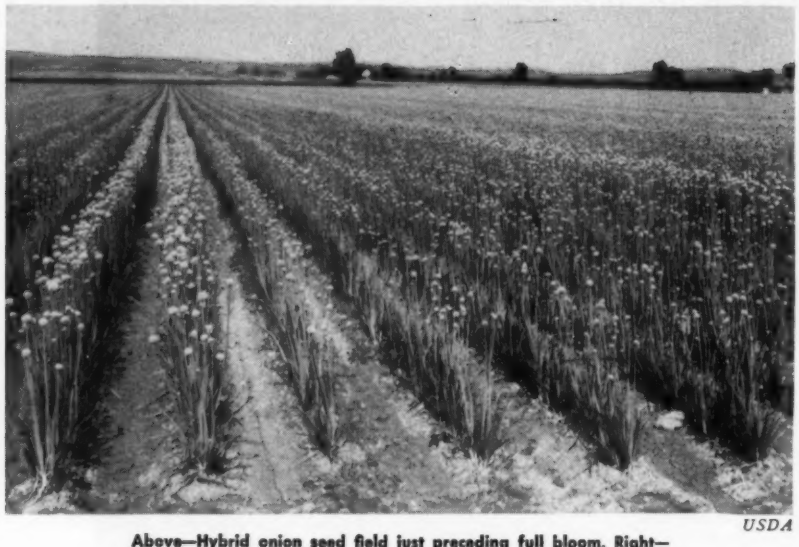
Nematodes cause damage to the roots by sucking out the contents of the plant cells. Their feeding also causes some mechanical injury, and the salivary secretions which they inject at the time of feeding also affect the roots. The feeding of the root knot nematodes cause galls on the roots of susceptible plants. Root injuries from nematode feeding predispose plants to entrance of plant disease organisms.

There are many nematodes that attack vegetable crops. The root knot nematodes are probably the most widespread and well known. Their presence is easily recognized because of the galls they form on the roots. The root lesion,

(Continued on page 24)

Tractor-mounted chisel-type fumigant applicator of Graves and Howley, Tustin, Calif., used to fumigate land with ethylene dibromide as preplant treatment for limas. Torkel Korling photo.

Plow sole applicator on two-bottom plow.



USDA

W. Atlee Burpee Co.

Above—Hybrid onion seed field just preceding full bloom. Right—Method of closing female cucumber blossom against foreign pollen.

A Look at the VEGETABLE HYBRID PICTURE

New hybrid varieties are on the way. Hybrid vigor can be helpful but there are limitations

By R. E. LARSON

The Pennsylvania State College

THE LAST 10 years have seen a rapid development and use of F_1 hybrid vegetables. A hybrid is an early generation of a cross between different parents, the immediate generation being termed F_1 and the second generation known as F_2. Excepting for sweet corn and onions, however, hybrids still have a long way to go to offer serious competition to vegetable varieties. Nonetheless, the number of hybrids available to growers is increasing annually, a natural consequence to the experimental studies which have preceded their utilization.

It has been found that hybrid vigor is expressed in the crosses of many vegetable crops. Hybrid vigor may be defined as the evident superiority of a cross over the better parent in some measurable character such as yield, earliness, size, or other desirable feature.

Certain studies were initiated as much as 40 to 50 years ago. It was natural to expect that vegetable breeders would accept the challenge to obtain the same benefits for various vegetable crops that had been achieved in the production of hybrid field corn. Hybrid vigor, of course, has long been utilized in tree fruits, small fruits, and other asexually propagated plants. This article, however, will deal with vegetables reproduced from seed.

Assisted by enthusiastic plant breeders and dynamic advertising the term "hybrid" has assumed a position in the eyes of many growers as something which is foolproof. Excellent hybrids have been developed for many vegetable crops, some of which have wide adaptability and many which do not. This should be kept in mind by growers so that the term "hybrid" does not acquire a black eye simply because the grower has tried one which under his conditions has not lived up to advance publicity.

Until recently the species offering the highest possibilities for commercial application of hybrid vigor were those in which a large number of seeds could be produced from a single pollination. It is logical, then, that most attention has been given to sweet corn, tomatoes, eggplants, and the cucurbits (cucumbers, squash, muskmelon, watermelon). Note also that these are crop species which are grown at relatively wide spacings and therefore require only a limited number of seeds per acre of crop grown.

The discovery of various types of sterility in crop plants and their application to the production of F_1 hybrid seed, has removed the restrictions that many seeds would need be produced from one pollination or that in only those crops requiring wide spacing was the use of F_1 hybrids economically practicable. This is particularly true of those crops which are naturally cross-pollinated, such as onion, in which we have seen such a rapid rise in popularity of F_1 hybrids. Also included are cabbage, spinach, carrots, beets, and the cucurbits.

Various experimental reports have indicated that each of these vegetables has shown beneficial responses in the F_1 hybrids between inbred lines. It should be pointed out, however, that

in this naturally cross-pollinated group commercially available hybrids are limited at present to sweet corn, onions, cabbage, and the cucurbits.

The number of hybrid tomato lines available to growers today is exceedingly large and undoubtedly many will become obsolete within a few years. A similar process is continually taking place with pure line tomato varieties. Greater earliness and productivity combined with high quality, of adapted

W. Atlee Burpee Co.

Burpee Hybrid cucumber in trial plots, showing vigor and disease resistance.

F_1 hybrid tomato lines, have proven their worth to many vegetable growers. Early Hybrid, Burpee Hybrid, Early Prolific, Faribo Hybrid, Moreton Hybrid, Eastern States F_1, Fordhook, Keystate, Clinton, Cornelicross, and many others, where adapted, have done exceedingly well.

In spite of the evidence of greater benefits, however, hybrids have not been well accepted by the commercial canning industry except in limited areas. It has been assumed that this was probably due to the high cost of F_1 hybrid seed, and there is evidence that this is partially the case. Because of the high cost and the difficulty in producing large volumes of F_1 hybrid seed, seed from the F_2 or second generation of desirable crosses have been offered for commercial use.

It is possible with the F_2 plants to retain a part of the vigor that is expressed in the F_1 hybrid, and certain F_2 lines such Stokescross 4 and 5, Harvestcross, and Vancross have achieved this. The use of F_1 and F_2 tomato hybrids, however, has not attained what should be expected on the basis of experimental records, and the fact that large quantities of seed are still rather difficult to obtain is a negligible excuse inasmuch as if they were deemed worth while the seedsmen's production ingenuity would see to it that sufficient supply would be made available to meet the demands of the processing trade.

It is possible that plant breeders have not paid sufficient attention to the qualities which make a good processing tomato but have instead emphasized maturity, size, and production. There are certain obvious contradictions to this theory, however, inasmuch as hybrid tomatoes of excellent quality can be obtained. There remains one semi-obvious conditioning factor and that is the variation caused by the influence of environment on the productive capacity of the tomato.

The variation between farms for any one variety in terms of production may be from four to 30 tons per acre in one production area. Obviously the best cultural practices for the growing of tomatoes have not been ascertained or are not being adopted. We might theorize, then, that the growers of processing tomatoes (particularly canning companies that choose the variety and do the plant growing) feel that the time is not yet ripe for the investment in more expensive hybrid seed. No F_1 hybrid has yet been introduced which will overcome the obstacle of poor cultural practices.

F_1 hybrid onions have achieved the distinction, at least in the opinion of Dr. Victor R. Boswell, USDA, as being the most noteworthy advance in vegetable breeding in a quarter century. Commercial production of F_1 hybrid onion seed is achieved by use of a male sterile character that is due to both inherited nuclear and transmitted cytoplasmic factors. The cytoplasmic factor is transmitted only by the female parent.

This discovery in onions was made by Dr. H. A. Jones, USDA, and his co-workers in 1925 and resulted in the introduction of California Hybrid Red No. 1 in 1936. Since that time many new and improved hybrid onion lines have been introduced, and private seed firms today are processing thousands of pounds of F_1 hybrid onion seed at prices that compete with those of ordinary seed. Commercial F_1 hybrids such as Granex, a yellow hybrid between Excel and Texas Early Grano 951; Sweet Spanish types Y-41 and Y-42; Autumn Glory which is similar to Early Yellow Globe; and Hybrid No. 7 are definitely more uniform in size, shape, and color and are highly productive.

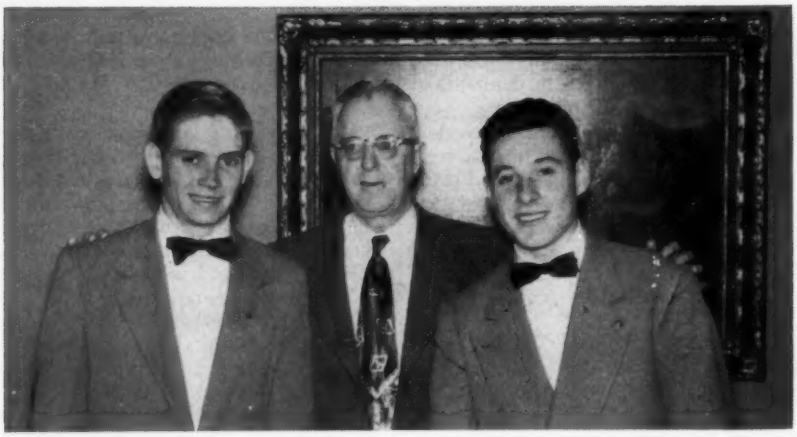
USDA

Field of yellow onion hybrid Granex F_1. Workers are clipping tops and roots.

It has frequently been suggested that it should be possible to combine resistance to two or more diseases into a F_1 hybrid line, an accomplishment which has seldom been obtained in pure line varieties. The introduction of the Burpee Hybrid Cucumber probably has come as close to achieving this as any other variety or hybrid introduced.

By concerted effort in collecting strains, purifying, hybridizing, and testing, a hybrid was obtained which according to experiment stations and growers' reports shows a high degree

(Continued on page 26)



Winners of a special top award for soil fertility in the National Junior Vegetable Growers Association demonstration contest were Henry Rolfe, Newbury, Mass. (left), and Walter Paszko, Haverhill, Mass. (right), shown with Coach C. M. Stearns, Danvers, Mass., county agent. They demonstrated how to test the fertility of the soil.

Keep Your Eye on JUNIOR VEGETABLE GROWERS

The Younger Generation is rarin' to go!

By R. T. MEISTER

VISITORS to the demonstration and judging contests sponsored by the National Junior Vegetable Growers Association came away shaking their heads in wonderment. For the juniors between the ages of 13 and 21 are learning vegetable production from the ground up and, what is more, their learning isn't just theory—it's good, practical dirt farming based on actual experience.

For instance, this year's champ of Production and Marketing is John Howard Perry of Muskogee, Okla. Last year John grew and sold the production from four acres of sweet corn, four acres of cantaloupes, three acres of spinach, two acres of green beans, and two acres of Boysenberries. These vegetables and berries were worth $3,761 as sold at his roadside market and they netted him a nice profit of $1,559.

Over 500 junior growers took part in the recent convention at Tulsa, Okla. From 35 states they came, anxious and eager to try their newfound skills. Formed to promote an educational program of projects and activities for youth who have an interest in the culture, marketing, or utilization of horticultural crops the NJVGAA was started in Hartford, Conn., in 1935.

Winners in the soil fertility essay contest held in co-operation with the American Plant Food Council were Irene Scott, Littleton, Colo., shown with Jimmy Chastain, Rogers, Ark. (left), a state winner, and Dwight Abbott, Indianapolis, Ind., a regional winner.

The program as it has been developed over a period of years gives vegetable youths a fine opportunity to learn about the vegetable industry in a practical way and at the same time to develop qualities of leadership and the ability to work together with boys and girls from all sections of the country.

The program is financed by the NJVG Foundation which provides an opportunity for business, industry, civic, farm, and service organizations to co-operate in promoting the educational projects of the association. Chairman of the foundation and adult advisor of the association is Prof. Grant B. Snyder of the University of Massachusetts, Amherst.

Two teams tied in the vegetable judging, grading, and identification contest. Ohio and Indiana both scored 2,806 points out of a possible 3,000 and will share the Snyder trophy, a plaque presented by Grant Snyder, adult leader of the association. Winners are, from left: Fred Dorow, William Oebker, and Marvin Gundersen, all of Avon, Ohio; Carl Deeds, Ohio coach; Dale Schinbeckler, Indiana coach; and Donald Rose, Gene Flickinger, Wyman Wert, all of Kendallville, Ind.

Royal J. Haskell of USDA, adult advisor, presenting award for top scores in judging, grading, and identification contest to Marvin Gundersen, Avon, Ohio.

Adolph Junginger of W. Atlee Burpee Seed Co. presents prize to demonstration contest winners Leon Allen (left) and Kermit L. Braswell, Roanoke Rapids, N. C. Coach H. M. Wilkinson, assistant Halifax County agent in background. Winners showed how to grow tomato plants in flats.

Winner of the 12th annual production and marketing contest with a $300 scholarship was John H. Perry (center), Muskogee, Okla. To the left are regional winners Stanley J. Pieczarka, Jr., Agawam, Mass., and Betty Swallow, Hamilton, Mont.; to the right, Joyce Verzwyvelt, Alexandria, La., and Jack Armstrong, Springfield, Ill.

Second place winners in the demonstration contest were Annietta Wilson, Rock Cave (left), and Arlene Strader, Crawford, W. Va., who showed how to build roadside stand. Coach F. Taylor, Upshur County agent, is in center.

NJVGAA officers elected for 1954: Seated, from left—Roy Curtiss III, Ithaca, N. Y., president; Nadine Thompson, Lakewood, Colo., vice-president; and Beverly Bishop, Sherwood, Wis., secretary. Standing, from left: Joyce Young, Darling, Miss.; Jack Armstrong, Springfield, Ill.; Buddy Brixey, Agra, Okla.; and Delmar Chase, Lewisburg, W. Va., board members. Left—Collegiate Judging Contest winner was University of Kentucky team, from left: Emma Conder, Mary Ann Huflage, Earl Finn, Coach Ed Klinker.

STATE NEWS

- **Plants Thrive Under Plastic Film**
- **Sugar Sprays Insure Growth of Transplants**

KENTUCKY—Use of irrigation, a regular spray program, and the addition of fertilizers based on soil tests netted for Paul Fehr, Cold Spring, a return of $1,288 per acre from late tomatoes, in spite of the severe drought of 1953.

Polyethylene plastic film has shown great promise in Kentucky as a plant protector for early planted tender crops such as tomatoes. In addition this film has been used successfully as a substitute for glass in hotbed sash with great reduction in sash weight.

Several growers have constructed temporary greenhouses of lightweight, cheap lumber and have covered them with plastic film at only a small fraction of the cost of constructing a conventional greenhouse. Recovering with film each year is required, but this expense probably will not exceed the yearly upkeep of conventional houses.

The Kentucky department of horticulture plans considerable new research in the field of plastic film for vegetable production. Plant growth under this plastic film has been excellent.—*J. Edward Klinker, Assoc. Hort., Lexington.*

INDIANA—Members of the Indiana Vegetable Growers Association met at Purdue University, Lafayette, on January 6 for their annual winter meeting with the agricultural extension service. President Lester McCrosky of North Judson presided and Prof. J. S. Vandemark of Purdue's horticulture department and assistant secretary of the association arranged the program.

Staff members of Purdue's horticulture department brought the visiting growers up-to-date on experimental work being conducted there and gave them recommendations for ways to grow vegetables more efficiently this year. Dr. Leslie Hafen suggested the following tomato varieties: For first early—Early Giant Hybrid, Moreton Hybrid, Alpine x Stokesdale cross, and Stokesdale x Bounty cross; second early—Stokesdale, Burpee Hybrid 1132, Stokesdale Cross No. 1; main crop—Purdue Hybrid No. 1361, Boon, Kokomo, Rutgers, and Rutgers x Pritchard F_1 and F_2 hybrids. The latter F_2 cross is not suitable for staking.

Prof. M. O. Thomas reported on other vegetable variety trials at Purdue last season. Among varieties which look promising are Topcrop green bean; Marketer, Burpee Hybrid, and two Pennsylvania hybrid cucumbers; Purdue Hawksbury watermelon; Golden Security, Golden Harvest, and Huron sweet corn; Oklahoma No. 46 sweet potato; and Emerson celery.

Leaf feeding was the subject of the talk by Dr. G. F. Warren. He pointed out that all elements can be absorbed through the leaves of plants but often the amounts so absorbed are minute and not sufficient to maintain plant growth. This is especially true of nitrogen, phosphorus, and potassium. The elements must be in the right form for absorption, too. Some will cause injury to the leaves if applied in very strong concentrations.

Secretary of Agriculture Ezra T. Benson will be given a testimonial dinner by the Vegetable Growers Association of America on Thursday evening, February 11, during the organization's second annual Washington workshop.—A. Lee Towson, Jr., Pres., VGAA, Seabrook, N. J.

One place where foliar feeding is important, Warren pointed out, is in the application of such minor elements as manganese and iron and sometimes magnesium. Another place where foliar applications might be practical is in the replacement of side dressing with nitrogen. With crops that are sprayed regularly, the nitrogen fertilizer can be mixed with the spray and applied in one operation, thus eliminating an additional operation.

Dr. Warren further discussed the use of sugar sprays on plant beds before transplanting. Tests at Purdue and elsewhere indicate this to be a beneficial practice. Dr. Warren suggests spraying beds of such plants as tomatoes, cabbage, and others, with a five per cent solution of sugar, twice, about a week before pulling the plants. Livability of such plants has been much greater than those not treated, especially if the season is adverse.

The advantages of using liquid fertilizers in vegetable production were discussed by John Strauss, agronomist with the Liquidizer Corp., Vincennes, Ind. He cited these advantages of liquid fertilizers over the use of ordinary dry forms: 1) they require less labor and time to apply; 2) application is convenient; 3) they are less corrosive on equipment as they can be easily washed out with water when the job is done.

The following were elected to office for 1954: Lester McCrosky, North Judson, president; Ernest Vehling, Indianapolis, vice-president; Keith Owens, Jr., Terre Haute, second vice-president; Fay Gaylord, Lafayette, secretary; and Joe Vandemark, Lafayette, assistant secretary.—*Eldon S. Banta.*

WISCONSIN—Considerable interest is developing in both direct-seeded and transplanted celery as a muck soil crop for Wisconsin. The proper selection of varieties, as with other vegetables, is an important factor in determining success. The self-blanching or yellow varieties because of their shorter season lend themselves very well to direct-seeding. The green varieties on the other hand serve best when handled as a transplanted crop. The following varieties are suggested for Wisconsin growers:

Cornell 619—A self-blanching type with

During recent Iowa State Vegetable Growers Association annual meeting at Mason City an outstanding grower and two noted onion breeders were snapped while discussing the 12 new onion varieties recently released by the USDA. From left: D. F. Franklin, superintendent, Branch Experiment Station, Parma, Idaho; C. E. Peterson, Iowa State College; Sam Kennedy, Clear Lake, Iowa.

a thick petiole. In many respects this is the most outstanding self-blanching variety available to growers. Resistant to Fusarium yellows.

Cornell 19—A yellow or self-blanching type similar to Cornell 619, but does not have as thick a petiole. This variety is also resistant to yellows.

Michigan Golden—Another self-blanching type also resistant to Fusarium yellows. The self-blanching types are desired rather than the green types by the processing industry.

Golden Plume—A standard non-resistant self-blanching variety. This is a relatively short-season type, therefore lending itself to direct-seeding purposes.

Utah 52-70—A medium petioled type, but a heavy producer with excellent table quality. The green types are very popular on the fresh market.

Summer Pascal—A short growing green type celery with thick petioles and outstanding table quality.

Emerson Pascal—A long petioled, heavy-producing green type celery. This variety has been an attractive, fine-cut, leaf type rather different from other varieties.—*John A. Schoenemann, Ext. Spec. Veg. Crops, Univ. of Wisconsin, Madison 6.*

MASSACHUSETTS—One of the difficulties usually experienced in the culture of onions grown from sets is that 10 to 20 per cent of the plants bolt, that is, send up seed stalks. Most onion growers snip off the flower buds to prevent flowering and seed production. This process requires the labor of at least one man for one day per acre.

W. H. Lachman and E. F. Upham of the University of Massachusetts report that recent tests made at the university show that where the sets are kept for certain periods in warm storage in combination with cold storage before planting, the production of seed stalks is reduced significantly and may be prevented altogether. For example, large sets stored at 86° F. for 16 weeks produced plants which bolted only two per cent as compared to 85 per cent bolting from sets stored at 32° F.—*C. L. Thomson, Ext. Spec., Amherst.*

FLORIDA—Growing conditions during the second half of December were generally unfavorable. Planting of late winter crops continued to be active in the south Florida area. Preparation of land and planting of some spring crops is also underway in the southern part of the state. There is progress and planting of a few crops in the central and northern parts of the state.—*George Talbott, FFVA, Orlando.*

MARYLAND—About 100 growers attended the meeting of the Maryland Vegetable Growers Association in Baltimore on January 7. Topics discussed included liming, irrigation, mechanical aids to harvesting, and the Baltimore market.

Newly elected officers are: A. Morris Todd, Jr., Dundalk, president; John S. Parker, Salisbury, vice-president; and Francis C. Stark, Jr., College Park, assistant secretary-treasurer.—*Andrew A. Duncan, Sec'y, College Park.*

GEORGIA—The grower of sweet corn for shipping is looking for a high yield of large ears, free from corn ear worm damage, and of a quality and appearance acceptable to the consuming market.

In many sections of the commercial corn growing areas, Ioana is still the leading variety. Last year many growers gave Calumet a good try and really liked it. More will be planted this year.

Huron, an Asgrow hybrid, noted for its high yield of attractive large ears, has also been rated extremely high in southern trials.

(Continued on page 14)

Since 1885, Stauffer has been producing quality pesticides according to exacting specifications. That is why growers everywhere know that, pound for pound, Stauffer branded products give better protection because they are *always* the same high quality. Here are insecticides and fungicides that you can *depend* upon for spraying and dusting schedules:

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The exceptional new organic fungicide for vegetables... effectively controls a variety of fungi on tomato, potato, carrot, cucurbits, celery, spinach, and onions... assures superior yields of outstanding size.

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Microfine Dusting Sulphur... free flowing... formulated especially for use during light, misty rains.

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Reports from other important growers tell similar success stories . . . "high quality yields", "fewer days spraying", "better disease control", "no extra spraying help".

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CALENDAR OF COMING MEETINGS AND EXHIBITS

Feb. 1–3, 1954—39th annual meeting Ohio Vegetable and Potato Growers Association, Commodore Perry Hotel, Toledo—E. C. Wittmeyer, Ohio State Univ., Columbus 10.

Feb. 3—University of Massachusetts Vegetable Day, Amherst.—C. L. Thomson, Ext. Veg. Spec., Amherst.

Feb. 4–5, 1954—University of Wisconsin Farm and Home Week vegetable crops program in conjunction with Wisconsin Muck Farmers' Assn. annual meeting, University of Wisconsin, Madison. —O. B. Combs, Sec'y, Madison 6.

Feb. 10–11—Suffolk County Potato Growers' 22nd annual convention, Polish Hall, Riverhead, L. I., N. Y.—Walter G. Been, Sec'y, County Agr. Agent, Riverhead, L. I., N. Y.

Feb. 16—Southeastern Wisconsin Area Potato Growers meeting, Milwaukee County Agricultural Agent's Office, 9035A Watertown Plank Road, Milwaukee 13.—John A. Schoenemann, Ext. Spec., Veg. Crops, Univ. of Wis., Madison 6.

Feb. 18–20—Watermelon Growers and Distributors Assn., Shamrock Hotel, Houston Tex.—J. J. Parrish, Sec'y-Treas., Adel, Ga.

Feb. 24—Area Vegetable Growers Meeting, Milwaukee County Agricultural Agent's Office, 9035A Watertown Plant Road, Milwaukee 13. —John A. Schoeneman, Ext. Spec., Veg. Crops, Univ. of Wis., Madison 6.

Feb. 25—Area Vegetable Growers Meeting, Racine and Kenosha Counties, Gas and Electric Company Auditorium, Racine, Wis.—John A. Schoenemann, Ext. Spec., Veg. Crops, Univ. of Wis., Madison 6.

Apr. 6–8—University of Maine Farm and Home Week, Orono. Apr. 6—Home Vegetable Garden in A.M.; Market Garden all day; Apr. 7—Processing Crops.—Robt. W. Paulson, Veg. Spec., Orono.

STATE NEWS

(Continued from page 15)

The standard of comparison, Aristogold Bantam Evergreen, is still planted by many and is considered as best by some experiment station workers.

In tomato varieties, commercial growers will plant mostly the Rutgers for greenwrap shipping this season.

The Manalucie variety of tomato was released in Florida in March, 1953. It is a promising large-fruited, late season stock which is resistant to Fusarium, Alternaria blight, and grey leaf-spot.—*Raymond Sheldrake, Jr., Ext. Veg. Spec., Athens.*

MICHIGAN—The research committee of the Michigan Vegetable Council has been working, under the leadership of Chairman Roy Burghart, Greenville, to assemble a list of the research projects which Michigan vegetable growers feel most seriously need attention. An excellent list was prepared and presented to Michigan Agricultural Experiment Station Director L. M. Turk at a recent luncheon meeting. In addition to Dr. Turk and Assistant Director Roy Marshall, heads of all departments concerned with any phase of vegetable research were guests of the council.

Mr. Burghart stressed the point that the list was in no way meant to dictate research programs but was intended as a source of suggestions and guide to research workers. Forrest Smith, MVC president, suggested that a similar meeting be held next year, at which time progress on any or all of the suggested projects could be reported and discussed.—*J. W. Rose, Ext. Hort., East Lansing.*

NEW YORK—"We may have had a bad year, but we're ready to meet the challenge of 1954," seemed to be the consensus of opinion displayed by the hundreds of forward-looking vegetable and potato men and their wives who met in the Syracuse, N.Y., War Memorial for their 19th annual joint convention January 6-8.

Re-elected to head the New York State Vegetable Growers for another year are the following: President, John Wickham,

Cutchogue, L. I.; secretary-treasurer, William B. Giddings, Baldwinsville; vice-presidents, Austin Avery, North Syracuse; Henry Marquart, Jr., Cherry Creek; Huested Myers, Albany; Don Shoemaker, Rochester; and Otis Davis, Prattsburg.

John Coulter, Canastota, was re-elected head of the Empire State Potato Club. Serving with him are Vice-President Wilbur Van Maaren, Honeoye Falls, and Secretary-Treasurer Leon H. Mehlenbacher, Wayland. New directors of the club include Lucian Hills, Wayland, and Karl Hoffman, Spring Valley.

Highlight of the opening session of the convention was a talk by Dean William I. Myers of Cornell's College of Agriculture entitled, "What's in the Future?" Dean Myers is known nationally as chairman of the National Agricultural Advisory Committee.

Commenting on this past year's squeeze on producers in the Northeast, Dean Myers said that New York State farmers' returns have averaged only 84 per cent of parity though the average for the entire country has been about 93 per cent. Reaction from the Korean boom and decline in export demand for wheat and cotton are responsible in part for this downward trend.

High support prices, especially on grain and cotton, have resulted in unbalanced farm production, he believes. New York farm prices have declined 24 per cent since June, 1952, but farm costs are nine per cent higher than they were at that time.

Dean Myers looks for a sidewise movement in farm prices this year with minor ups and downs. He feels that there may be modest reductions in some farm costs because of keen competition among business firms for the farm dollar. The long term outlook is more favorable because of the high rate of increase of the nation's population.

Also appearing on the program was James Swan, Jr., Delavan, Wis., 1st vice-president of the Vegetable Growers Association of America. Mr. Swan operates about 500 acres of muck. He feels that the future of vegetable growers depends on their working together through their national organization and their state and local groups.

VGAA President A. Lee Towson, Jr., of Seabrook Farms, New Jersey, and Past President Walter Pretzer of Cleveland spoke briefly telling of the aims and accomplishments of the national organization.

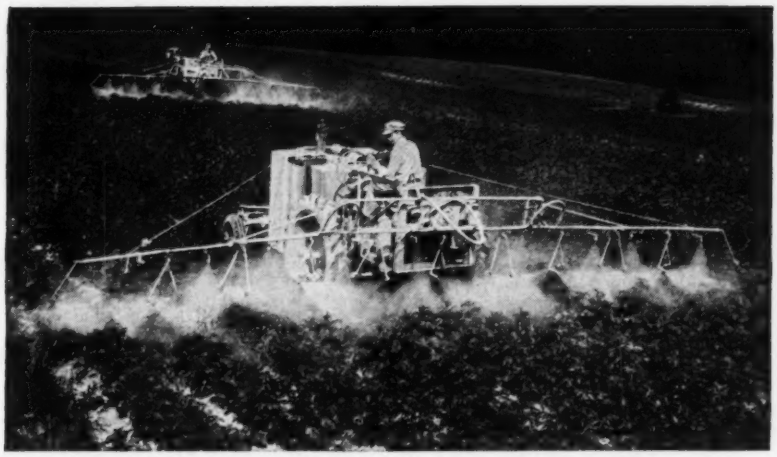
Center of interest wherever they appeared were the two New York state queens. Potato Queen JoAnn Eaton of Hubbardsville is the daughter of Mr. and Mrs. Fred Eaton. The Vegetable Queen is Miss Susan Avery of North Syracuse, daughter of Mr. and Mrs. Austin Avery.—*Dorothy S. Porter.*

R. L. Nicolai

OHIO—Robert L. Nicolai and Gilbert J. Kirwan have been named district representatives for the Gorman-Rupp Company of Mansfield, manufacturers of engine- and motor-powered pumps. Mr. Nicolai will serve as a liaison between factory and distributor in the northwest division, while Mr. Kirwan's headquarters will be in Atlanta, Ga.

The appointments are part of the sales and service expansion program of Gorman-Rupp in keeping pace with business, particularly with reference to pumps for the irrigation, the construction, and the petroleum fields.

G. J. Kirwan



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Use "Parzate" for potatoes, onions, tomatoes, celery, spinach, melons, cucumbers, beans, peppers, sweet corn and other vegetables. There's "Parzate" liquid for quick-mixing sprays, or "Parzate" dry for sprays or dust mixtures.

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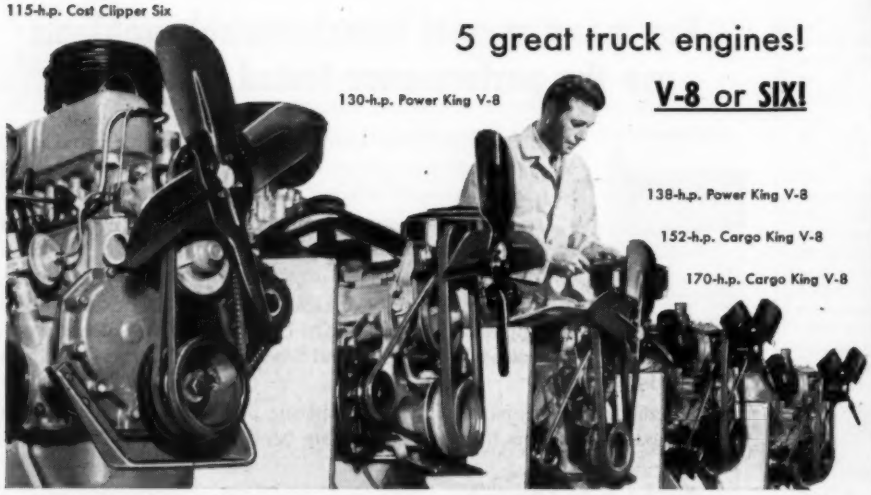

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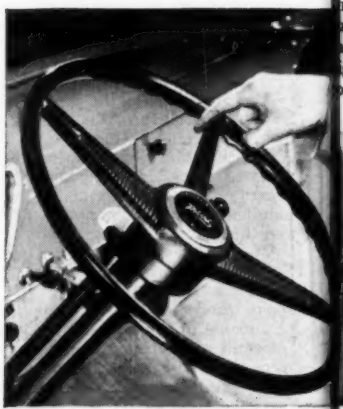
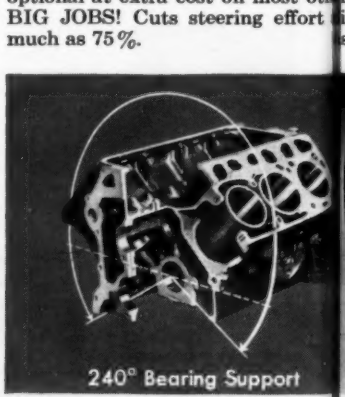
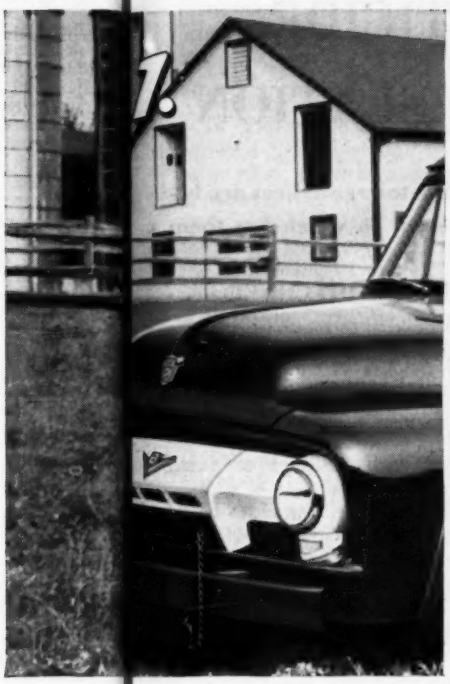


NEW Ford Master-Guide Pow Steering standard on Series T-8 optional at extra cost on most oth BIG JOBS! Cuts steering effort much as 75%.



Smooth power! NEW Deep-Bl design! Ford engine blocks have d skirt crankcases, wide-base flyw housings, for high structural rigid



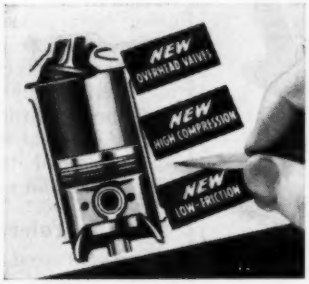
EW LOW-FRICTION engines ffer power increases up to 23%! ne reason for greater power *with s-saving economy:* new wedge- aped combustion chambers create gher turbulence, burn gas more mpletely, without pre-ignition.

2. NEW 3-MAN DRIVERIZED CABS for easier, safer control! For economy that results from keeping the driver *fresh* on the job! Exclusive Ford seat shock snubbers. New woven plastic upholstery "breathes" like cloth. Huge curved one-piece windshield for visibility unlimited!

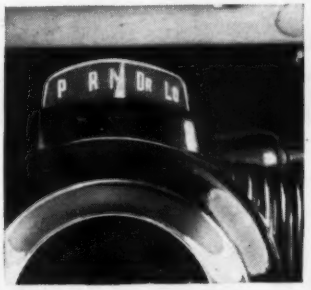
3. NEW Capacities! 6-Wheelers, Cab Forwards, over 220 models! Ford's new line goes all the way from Pickups to 60,000-lb. GCW BIG JOBS—new factory-built 6-wheelers—two more giant Cab Forward Series. Minimum deadweight increases payload capacities.

ter-Guide Pow rd on Series T-80 cost on most oth s steering effort

Ford has DRIVERIZED comfort! Deluxe Cab has foam rubber seat ing, plus 15 other custom s (at extra cost).

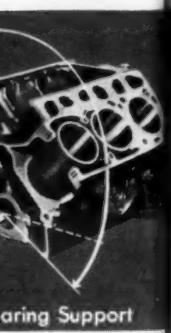


NEW Ford engines reduce friction losses up to 33%! Short-stroke design cuts internal friction, delivers more usable power per gallon of gas.



NEW Fordomatic Drive saves driver time and energy. Fully automatic! No clutching! No shifting! Available in all Ford light-duty models for '54.*

NEW Vacuum Boosted Power Brakes now available on half-tonners make stopping up to 25% easier.* Pressure needed to stop truck won't break light bulb.



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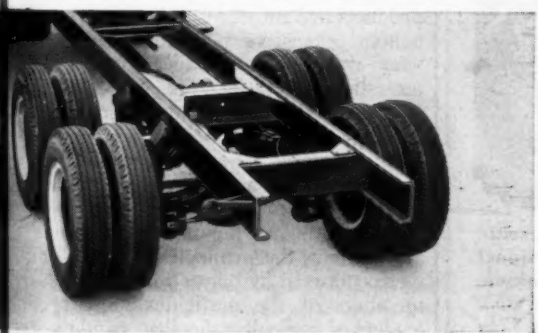
! NEW Deep-Bl gine blocks have d , wide-base flywh h structural rigid



'54, Gross capacities increased up to 48% with two new Tandem-Axle BIG JOBS. Rated up to 60,000 lbs. W! Four wheelbases, 144 in. to 192 in. Priced with the low- Ford-designed chassis with Ford-installed tandem axles.

*All items marked by an asterisk in this advertisement are available at worth-while extra cost

Farm Favorite—new F-600 ("2-ton"). Choice of three LOW-FRICTION engines.

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Lowers flat on the ground for easy loading without heavy lifting.

Lifts on the level to full height for travel—no tilting of load.

Constant hydraulic control lifts, lowers, adjusts height for loading and unloading.

Steel frame with stake pockets holds platform, rack sides, tight box, etc.

Backs into close quarters to pick up and deliver loads as desired.

Picks up sprayer, goes to buildings, yards, gardens, fields, orchards.

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Mounts in a minute on any Case Tractor with Eagle Hitch. Takes the heavy lifting out of farmstead hauling. Carries boxes, bales, crates, barrels—feed, water, spray rig, fencing, posts, lumber, fertilizer. Saves steps, time, strength for you.

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WITH FAMOUS

EAGLE HITCH

You take a single step to platform . . . settle into the low Bodyguard® seat with torsional rubber springs . . . stay seated for one-minute hook-up of Eagle Hitch mounted plows, disk harrows, other implements, utility carrier. Low profile with tail-pipe exhaust—upright pipes optional. Adjustable tread, front and rear—or dual front wheels if desired. See it at your Case dealer's; send for new catalog. J. I. Case Co., Dept B-214, Racine, Wis.

PESTICIDE LEGISLATION

New residue tolerance laws are being proposed, so watch for them

By LEA S. HITCHNER

National Agricultural Chemicals Association

IF YOU market vegetable produce in interstate commerce (across state lines) you are apt to be affected by recently proposed federal legislation dealing with residues of farm chemicals on all crops.

This bill, called the Pesticides Residue Amendment to the Federal Food, Drug and Cosmetic Act (Miller Bill, H. R. 4277) was submitted to the last session of Congress and is still alive. Hearings were held on this amendment by the House Interstate and Foreign Commerce Committee last July. It is expected that the bill will be reported favorably during this session of Congress.

The bill proposes some changes in procedures to establish tolerances (the maximum amount of pesticidal residues, if any, which will be permitted to appear on vegetables, fruits, and other farm produce sold in interstate commerce). The present law, as it pertains to residues on farm products, has not been rigidly enforced; nor have the administrators of the Food and Drug Act established pesticidal residue tolerances for the new insecticides, fungicides, and weed killers.

Residue Tolerances Are Needed

Growers need these tolerances for guides in their spraying and dusting operations. The industry and agricultural leaders need these residue tolerances upon which to base their directions for use of pesticides by growers. Without these guides, the farmers' products are subject to seizure if they contain excessive pesticidal residues when the farmers' produce appears in interstate commerce. The Miller Bill proposes to correct the uncertainty about the use of pesticides in agriculture and at the same time protect the public health against excessive pesticidal residues.

During the hearing on this proposed amendment, the prinicples of the Bill were endorsed by major farm groups, members of the pesticides industry, leaders of agricultural colleges and experiment stations and horticultural societies. Among those endorsing the principles of the bill were: American Farm Bureau Federation, National Grange, National Apple Institute, In-

ternational Apple Association, New York Horticultural Society, and Entomological Society of America.

Principal Features of Legislation

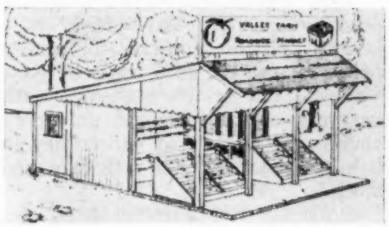
In brief, some of the principal features of this legislation which, in our estimation, make it a worthwhile approach to regulating pesticidal residues are: 1) It treats pesticides separately from chemical additives used in the processing of foods; 2) it treats with the use of chemicals as they are used on the farm; 3) it simplifies the costly procedure to establish the pesticidal residue tolerances which are now necessary under the present law; 4) it requires the issuance of these pesticidal residue tolerances within a reasonable length of time after request for a tolerance is made.

Fundamentally, the adoption of this amendment to the Food and Drug Act will not change agricultural practices used by vegetable growers, but it can heighten the responsibility of the farmer to follow directions for use of these products, carefully, in order to avoid seizure of farm produce due to excessive residues of pesticides.

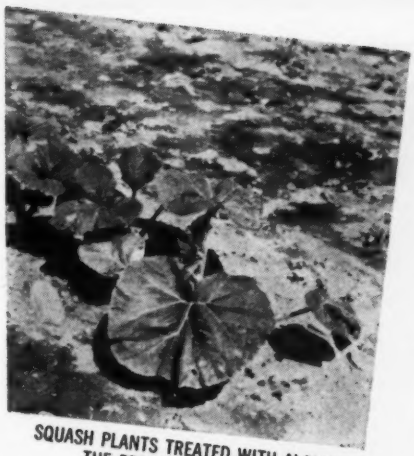
The burden of establishing the method of use of these products will still remain with the manufacturer who must register his label with the USDA if he sells his pesticides in interstate commerce.

We believe that the adoption of this amendment will eliminate a good deal of the confusion regarding the use of pesticides in agriculture, and that it is a bill in the public interest and in the interest of the industry and agriculture. However, it will require the continued support of all phases of agriculture to bring this amendment to a vote in the House during this session of Congress. THE END

This roadside market, conveniently located so the motorist can readily stop, will make it easy for you to take care of customers quickly. Movable racks make it possible to maintain an



attractive stand in accordance with supply and demand, and the overhanging roof affords protection for the customer. Working drawings for this easy-to-build stand are available for 50 cents from AMERICAN VEGETABLE GROWER, Willoughby, Ohio.



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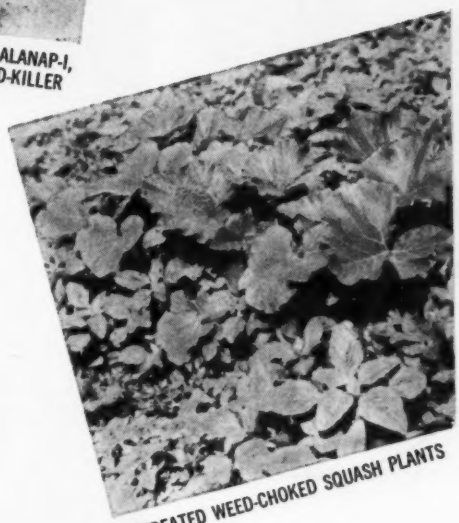
Far less weeding cost with **ALANAP-I*!**



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Far more money for you!

Alanap-1 can save you up to $150 per acre by killing weeds before they appear. That means a greater profit margin...many more dollars for you. And you pay surprisingly little per acre for this amazing new chemical that kills a wide variety of weeds.

One pre-emergence application of Alanap-1 gives excellent weed control for 3-8 weeks—even after heavy rains. It is easy to apply, non-hazardous to humans and animals and leaves no residue on crops.

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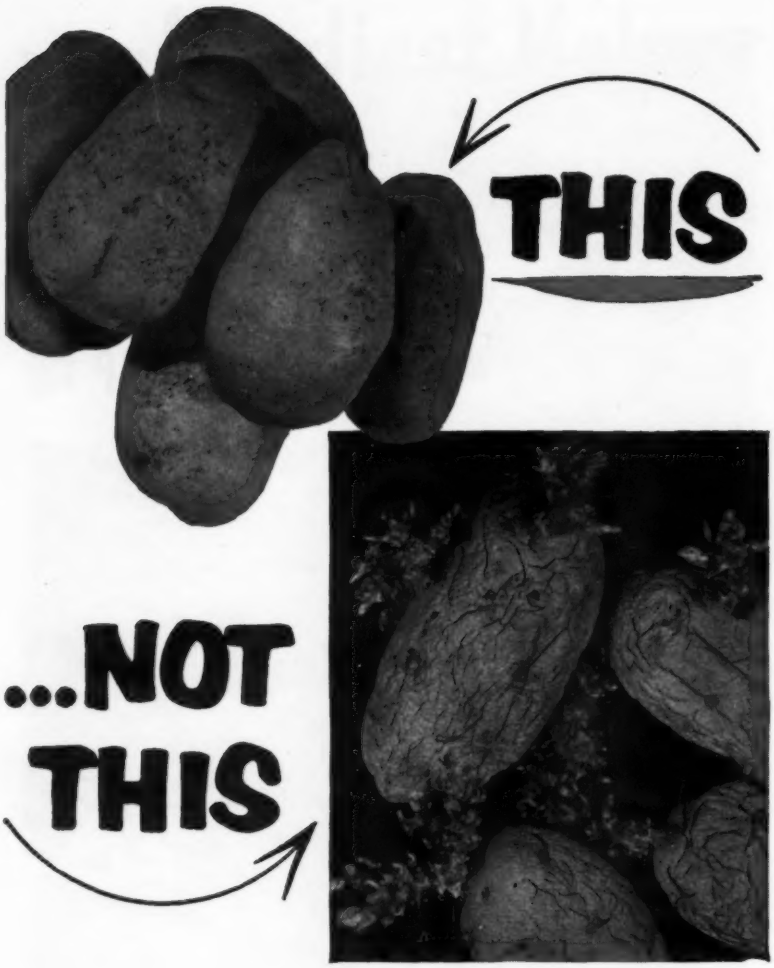

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checks sprouting, reduces shrinkage, keeps that fresh-dug look.

Sprouted potatoes don't sell. And here's the *only* wax that definitely retards sprouting throughout the marketing period—Johnson's Sprout-Inhibitor Colorfresh.

What's more, Sprout-Inhibitor Colorfresh gives you two *additional* profit-making advantages: reduces shrinkage . . . and maintains the fresh-dug appearance of your potatoes.

Sprout-Inhibitor Colorfresh is easy to apply to all varieties of potatoes. Get the facts from your local Johnson's Wax distributor. Or write today to:

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TRAP-NESTING TOMATOES

Rigid plant selection assures purity of seed

By ELDON S. BANTA

TRAP-NESTING" is a term we generally associate with poultry raising and breeding. However, at Rutgers University in New Jersey the term applies to tomato breeding and variety selection. In principle it really is very similar to the poultryman's practice.

Ever since the outstanding Rutgers variety was produced by Prof. Lyman G. Schermerhorn at Rutgers University in 1934, careful watch over the purity of its seed stock has been carried on by its originator. In brief, the method consists of keeping individual plant production records on a number of plants each year.

From time to time during the growing and harvest seasons, Prof. Schermerhorn, together with his well trained assistants, check every plant in the plots, marking those which should be discarded as well as those which are outstanding. Only those plants which exhibit outstanding Rutgers characteristics are maintained and used for mother seed stock.

High Standards Maintained

The plants must stand up under this rigid roguing on every count, not just high yield. Such factors as color, texture, and size of individual fruits, vine growth and foliage density, blossom period and fruit setting characteristics are among those under constant observation. Improvements in any of the characteristics of the variety are recorded and perpetuated in the new mother seed stock from those particular plants showing the improvement.

This system of perpetuating the purity of a particular variety is a service which Rutgers University performs for the seed trade of New Jersey. The state's seedsmen each year can obtain from the university foundation stock seed which they in turn can use to increase their own seed stock.

Only the two varieties bred and named at Rutgers University are trapnested under this system, namely, Rutgers and Queens. It seems that this is an excellent project to be conducted by the originator and his institution for the maintenance of purity of those vegetable varieties produced by them. Perhaps this has had considerable to do with the outstanding

Prof. Lyman G. Schermerhorn, head of the vegetable crops division at Rutgers University, New Brunswick, N. J., and originator of the Rutgers and Queens tomato varieties, examines one of the select plants of the Queens variety in his planting of 1,500 plants for high-producing pure mother stock seed. Each plant is numbered and its yield and characteristics are recorded. Only the very best plants are used for producing seed for distribution to seedsmen.

performance of the Rutgers tomato over such a wide area of the country and over such a long period of time. The future of the Queens variety looks equally as promising.

Individual Plant Records Kept

In 1945 Prof. Schermerhorn kept individual records on 800 Rutgers plants, of which only 312 were worthy of being used for mother stock seed. Last year 3,000 plants were grown for the production of general stock seed. Of these only 89 were selected for trap-nesting, and of this number just 11 plants were worthy of being designated as mother plants for 1954. Similarly, out of 1,500 Queens plants, 31 were trap-nested and only eight were considered worthy of being designated as mother plants for 1954.

Such a program of seed stock selection has infinite value to all concerned. You can imagine how many different "strains" of Rutgers might have developed if all plants were used for seed. This is just what happens when a variety is propagated from seed selected at random. THE END

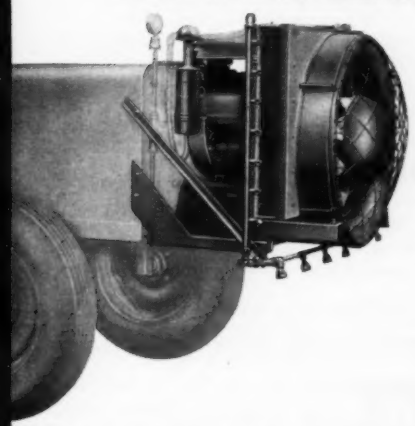
NEW VEGETABLE

AN even dozen growers near Carlsbad in San Diego County are more than pleased at the way the public is taking to the new vegetable "chayote" and they plan increased acreage for 1954. This is one of the new imported crops that is now in about the position that avocadoes occupied in California's agriculture 25 to 30 years ago.—*F. Hal Higgins.*

MIST SPRAY YOUR ROW CROPS FOR HIGHER YIELDS, LOWER COSTS

The new John Bean Speedaire Row Crop Spreader blankets a field of potatoes.

THE JOHN BEAN SPEEDAIRE



a performance-proven row crop air sprayer

Faster, more thorough coverage with savings in time and spray materials are being reported by every grower who used the SPEEDAIRE during the past season. Dilute, low-gallonage, or concentrate spraying are a matter of choice. Problems of uneven terrain and unwieldy booms can be ignored. The spray pattern can be easily controlled to meet wind and crop conditions. You get all the advantages of modern air-type spraying with this new John Bean Speedaire conversion unit for high pressure field-crop sprayers.

The Speedaire can be easily mounted on your present high-pressure sprayer of 20 G.P.M. capacity or larger.

● *Write for More Information on the Modern Mist Spraying. Ask Your Nearest John Bean Dealer for an In-The-Field Demonstration.*

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John BEAN LANSING 4, MICHIGAN SAN JOSE, CALIFORNIA

Division of Food Machinery and Chemical Corporation

FLORIDA WAGES WAR

New materials aid in the battle against destructive diseases

By CLYDE BEALE

FLORIDA farmers wage continual — and usually successful — war against mildews, blights, and other insidious enemies of their vegetable crops.

From more than 300,000 acres they harvest vegetables (not including cantaloupes, watermelons, and strawberries) valued at more than $137 million, and their success in growing these crops and realizing this income would not be possible without fungicides and efficient use of them.

Florida's mild climate and high rainfall are conducive to rapid growth of vegetables—and also of certain diseases that attack vegetables, so measures to control diseases are routine.

Research on plant diseases and their control is a major activity at the Main Experiment Station, Gainesville; Gulf Coast Station, Bradenton; Grape and Watermelon Laboratory, Leesburg; Central Florida Station, Sanford; Potato Investigations Laboratory, Hastings; Everglades Station, Belle Glade; and Sub-Tropical Station, Homestead.

Corn Sprayed 15 Times

After it had grown to million-dollar proportions in little more than a decade, Florida's sweet corn was threatened by Helminthosporium leaf blight, but growers are now using nabam-zinc sulfate, zineb, and Manzate with good effect against this destructive disease. Spraying 14 or 15 times at three- to five-day intervals after corn is four to six inches high and to within 10 days of harvest has proven effective.

The spray solution: two quarts nabam and three-fourths pound zinc sulfate to 100 gallons of water; or two pounds zineb to 100 gallons of water; or Manzate as directed by the dealer. As zineb and Manzate are not compatible with some DDT emulsions, four ounces of dried skimmed milk or casein should be added to each 100 gallons of these sprays to eliminate this incompatibility if the grower wishes to combine fungicide and insecticide.

For control of rust and powdery mildew of bush and pole beans, sulfur dust or spray has given good results. For the spray: 10 to 16 pounds of wettable sulfur per 100 gallons of water; for dusting; 325-mesh sulfur. When a planting is near diseased fields and weather is mild and humid, spray or dust a few days after emergence of the plants and repeat at weekly intervals until a few days before harvest. The same fungicides and practices are suitable for control of powdery mildew of lima beans.

Control of Downy Mildew

Downy mildew, a serious threat to cucumbers, cantaloupes, watermelons, and squash when weather conditions are favorable for it, is fairly well controlled with nabam, zineb, or Manzate. The spray solution: two quarts nabam, one pound zinc sulfate, and 100 gallons of water; or two pounds zineb and 100 gallons of water; or one and a half pounds Manzate and 100 gallons of water. In warm, damp weather, spraying should be started before the runners form and repeated about every three days; in fairly dry weather, applications may begin when runners are forming and repeated weekly until harvest.

A copper spray—four pounds tribasic to 100 gallons of water—has proven effective in preventing spread of angular leaf spot of cukes, cantaloupes, and squash. Use of disease-free

Eliminate costly handweeding of onions with

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WEEDKILLER

With hand labor costly and hard to get, more and more onion growers are weeding *chemically* with AERO Cyanate. Production costs are substantially lower, you save time and trouble as well as money.

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seed has been found to be the best control, however. Treating infected seed for five to 10 minutes in a solution of one ounce of corrosive sublimate crystals and seven and one-half gallons of water, then rinsing in clean water and spreading to dry before planting has been found effective.

The most effective control for powdery mildew of English peas in Florida is a spray of 10 pounds of wettable sulfur and 100 gallons of water, applied at 10- to 14-day intervals after signs of the disease appear or often enough to control the disease.

Leaf Blight Control

Good control of Macrosporium leaf blight of carrots has been obtained with a nabam-zinc sulfate or ziram spray, applied when the plants are five to eight inches high and repeated weekly. The proportions: two quarts nabam and one pound zinc sulfate in 100 gallons of water, or two pounds ziram in 100 gallons of water.

Zineb and nabam-zinc sulfate sprays have proven most effective against notorious late blight of tomatoes. If zineb is used, experiment station workers recommend two pounds per 100 gallons of water; if nabam-zinc sulfate is used, the proportions are two quarts nabam and three-fourths pound zinc sulfate in 100 gallons of water.

Nabam and zineb also are the two most effective controls for late blight of potatoes in Florida. A spray solution of two quarts nabam, three-fourths pound zinc sulfate, and 100 gallons of water, or two pounds zineb and 100 gallons of water is recommended. In southern Florida, spray applications are started as soon as plants emerge and are continued at four- to five-day intervals until two or three weeks before harvest. Growers in the Hastings area begin spraying when the plants are six to eight inches high and repeat at four- to five-day intervals.

In control measures against most diseases that attack vegetables, experiment station and extension service workers emphasize that the fungicides should be considered primarily as preventives, not cures.

The most significant development in the use of fungicides in recent years in Florida has been the increasing use of the carbamates in place of bordeaux and other copper compounds. While copper is still considered most effective against some plant diseases, it has been replaced by the carbamates in efforts to control many other troubles.

Recent tests by agricultural experiment station workers have shown some newer compounds have promise for plant disease control, but research has not gone far enough with these to recommend them for commercial plantings. THE END

Growers Report . . .

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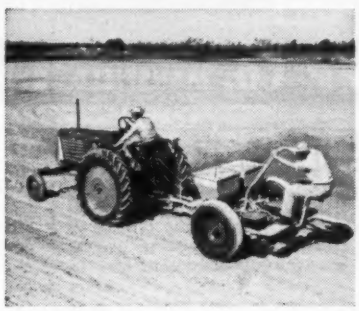
Growers everywhere report bigger yields per acre, bigger profits per season with Iron Age Potato Planters and the famous Band-Way method of scientific fertilizer placement. This combination assures you greater accuracy and flexibility . . . easier planting . . . greater yields—no matter what your acreage or soil condition. Check the rugged construction of Iron Age . . . self-aligning roller bearings that mean lighter draft . . . larger, all-steel hoppers for longer life . . . and you'll see why Iron Age is your best buy! Available in one, two, and four-row sizes. Ask your Oliver Iron Age Dealer to show them to you today!



IRON AGE VEGETABLE PLANTERS with scientific Band-Way—the exclusive method of culture that assures better yields—makes up the bed, sows the fertilizer, plants and covers the seed all in one quick, accurate operation. Band-Way prevents burning, leaching and fixation, uses less fertilizer more effectively, assures healthier, sturdier plants. See your Oliver Iron Age Dealer.

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First with — shaft seal under suction, virtually ending seal failures in the field.

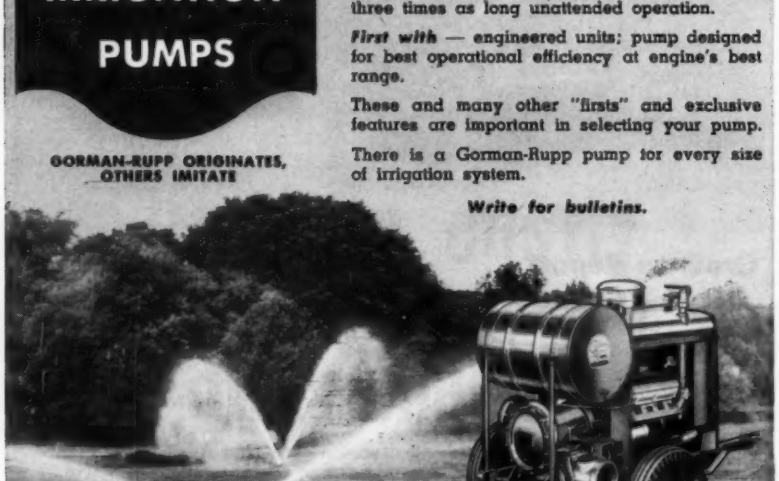
First with — large drum-type fuel tank — for three times as long unattended operation.

First with — engineered units; pump designed for best operational efficiency at engine's best range.

These and many other "firsts" and exclusive features are important in selecting your pump.

There is a Gorman-Rupp pump for every size of irrigation system.

Write for bulletins.



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BOOKS FOR YOUR HOME LIBRARY

VEGETABLE GROWING *by James S. Shoemaker.* Discusses individual vegetables, time and depth of planting, harvesting, and marketing. Every vegetable grower should have this 515-page, well-illustrated book in his library. $6.00

FARM MECHANICS TEXT AND HANDBOOK. An encyclopedia of shop and mechanical jobs for the farm. Information on tools, machinery, motors, wiring, and painting are contained in its 774 pages. $4.50

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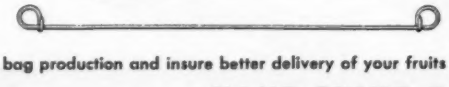

The most effective way to tie packaged fruits and vegetables. American Wire Ties are inexpensive and can be easily applied in the grower packing shed or cold storage. Wire ties will increase your package or bag production and insure better delivery of your fruits or vegetables.

HAND TYING TOOLS

American Rapimatic Spring Return tying tools are also available. These tools now being used by thousands of growers are sturdily built and last for many years.

Write today – WE WANT TO HELP YOU.

AMERICAN WIRE TIE COMPANY

GOWANDA BOX 72 NEW YORK

SOIL FUMIGATION

(Continued from page 7)

stubby root, and pin nematodes as well as certain others are also now recognized as causing considerable damage to vegetables. The potato rot nematode and the golden nematode as well as the above forms are important pests of potatoes in certain areas.

The symptoms exhibited by the aerial portions of plants whose roots have been damaged by nematodes are not specific. If plants appear generally unthrifty, stunted, off-color, and wilt during the heat of the day for no obvious reason, they should be examined for plant parasitic nematodes. The symptoms caused by nematodes feeding on the roots of plants also is not specific and is similar to and difficult to differentiate from the symptoms caused by certain plant nutrient deficiencies and diseases. Thus it is important to know whether plant parasitic nematodes are present in or on the roots and in the surrounding soil.

Chemicals For Soil Fumigation

Chemicals and equipment have been developed within the last decade for the practical and economical control of various soil-borne plant pests. When applied to the soil these chemicals (soil fumigants) will volatilize and diffuse throughout the soil mass and destroy or greatly reduce the populations of nematode and insect pests that interfere with normal root development. This results in an increase in the quantity and improvement in the quality of the produce.

Methyl bromide-two per cent chloropicrin mixture (Dowfume MC-2) is satisfactory for the treatment of seedbeds. This material, normally a gas, is packaged as a liquid under pressure. It is released by a special applicator under a gas-proof cover, the sides of which are sealed with soil. The soil to be treated should be in a friable condition free from clods and with sufficient moisture for seed germination. The soil temperature should be above 60° F. for best results.

When applied at the proper dosage and under suitable conditions it will control nematodes, insects, many weeds, and certain diseases even in the upper layer of the soil. The treated soil can be used after a few days' aeration and is satisfactory for the production of quality transplants. In a few instances plant growth has not been satisfactory following fumigation of soil with methyl bromide. When using such treatment for the first time on a new soil or a new crop small-scale trials are recommended.

Two liquid fumigants, ethylene dibromide (Dowfume W-85) and dichloropropene-dichloropropane mixture (Shell DD) are available for

large-scale field application. They are effective against nematode and insect pests. Any disease control obtained with these materials is generally considered to be an indirect effect caused by the reduction of root feeding pests.

It is not necessary to use a gas-proof cover with these fumigants, however, the soil should be smoothed and compacted on the surface with a harrow or float immediately following application. Best results are obtained when soil moisture is at approximately field capacity, especially with the lighter soil types. If the soil is dry the fumigant will escape too rapidly and if wet it will not diffuse properly. Best results are usually obtained when soil temperatures are between 50° F. and 85° F., although these temperatures are not absolute limits.

Application Equipment

Two types of equipment can be used for field application—the chisel and the plow-sole applicator. Probably the most common is the chisel applicator which may be either tractor-mounted or a trailer type. When this machine is used for overall or broadcast treatment the fumigant is injected into the soil under pressure through tubes attached behind the shanks or chisels. The chisels are spaced 10 inches apart and the applications are made at a depth of from six to eight inches.

The soil should be free of clods, with the trash well buried, and worked into seedbed condition at the time of treatment. This type of equipment also lends itself to row application where the fumigant is applied only in the rows where the crop is to be planted. This is satisfactory for widely-spaced crops and considerable savings can be realized. However, it is imperative that the planted row be placed in the treated area. This type of application permits the young plant to become well established and generally results in improved returns.

Soil fumigants may also be applied at the time of plowing with a plow sole applicator. The fumigant is sprayed or dripped into the bottom of the furrow and is covered immediately by the next furrow slice. The plow should be followed immediately with a disk or harrow to level and compact the soil.

When to Apply

Under moderate temperature and moisture conditions crops can be planted 10 to 14 days after treatment. When conditions are adverse to rapid soil aeration, more time is required between fumigation and planting. In northern areas fall applications are more satisfactory than spring applications for early planted crops. In general, seeds are more tolerant to the fumigant than are transplants. Soil fumigants have given better results on light sandy soils than on heavy clay or highly organic (muck) soil types, however, increased dosages on these latter types give effective results. Generally it is necessary to make yearly applications of fumigants to nematode infested land which is planted to susceptible crops.

In Michigan and Indiana experiments have shown soil fumigants to be effective for the control of various nematodes attacking truck crops. On sandy soils good response has been shown with muskmelons, sweetpotatoes, sweet corn, beans, cabbage, cauliflower, squash, carrots, and radishes. Except where grower experience has proven it satisfactory, ethylene dibromide should not be used for onions. Either material is effective for Irish potatoes, carrots, celery, and other crops grown on muck.

Dosage

A minimum dosage of at least three gallons of actual ethylene dibromide (equivalent to four and one half gal-

(Continued on page 26)

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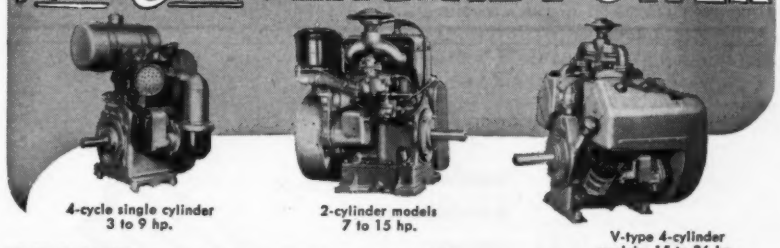

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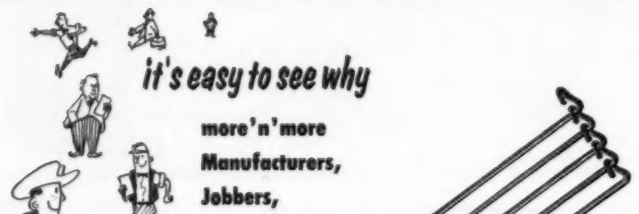

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SOIL FUMIGATION

(Continued from page 25)

lons of Dowfume W-85) or 20 gallons of dichloropropene mixture is satisfactory for the lighter soil types for overall treatments. Higher dosages are required on the organic and heavier soil types.

When nematodes and soil-borne insect pests are present in nursery land and areas where perennial fruit crops are grown soil fumigation will also aid in production. Certain soil fumigants have given good results for strawberries and have shown promise in nurseries and as an aid in establishing new cherry and peach orchards on old orchard lands. Dosages required depend upon the pests and crops involved but generally perennial crops require about twice the dosage as that used for annuals.

Under certain conditions not always understood, these fumigant materials when apparently properly used sometimes fail and they may also cause plant injury. Therefore until soil fumigation is an established practice for a particular crop in a given area it should be tried on a small scale.

Soil fumigants used for nematode control may all be safely handled if manufacturers' directions are carefully followed. Before applying fumigants users should study label directions carefully. THE END

HYBRIDS

(Continued from page 9)

of resistance or tolerance to mosaic, downy mildew, and bacterial wilt. Since that time Surecrop, Faribo, Sensation, and Foremost SL-1 hybrids have been introduced, each of which is vigorous and disease resistant, retaining their foliage until late in the season. All five are slicing cucumbers maturing early and continuing to yield over an extended period.

Plants of indeterminate fruiting habit such as cucumbers and tomatoes have been most successful where earliness of maturity is evident. This is equally true of hybrids in the squash group. Yankee Hybrid Summer Squash has been grown commercially since 1941. The fruit itself has many desirable horticultural characteristics. Its remarkable earliness, however, has made it the most popular yellow squash with many growers.

Zucchini Hybrid and Hybrid Cocozelle are both similar to the varieties from which they obtained their names. Both are earlier in maturity, however, than their varietal counterparts and for that reason are rapidly being adopted. Since season of maturity is

(Continued on page 29)

NEW FOR YOU

—to increase your profits

Big Help

We watched a demonstration of the Bolens Power-Ho tractor in a vegetable field last fall. Many new laborsaving attachments have been incorporated in the 1954 Bolens line. A major improvement in the tractor itself is the new Versa-Matic single lever control which gives the grower instant changes of forward speeds under full power, under loads, and without shifting belts or clutching. This new garden tractor has been engineered for the vegetable grower. You should look at Bolens' facts and figures on the '54 tractor. Write Earl Holsen at Bolens Products Div., Food Machinery & Chemical Corp., 316-7 S. Park St., Port Washington, Wis.

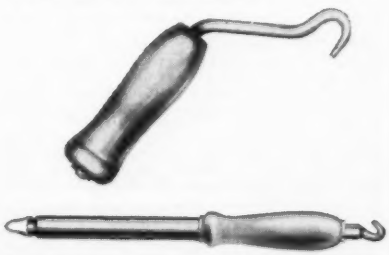
They Are Beauties

Just the other day we attended a preview of Chevrolet trucks for 1954. There are six major changes in the truck line which include: three new engines with increased horsepower, optional automatic transmissions through the one-ton range, increased durability, improved comfort for driver through a new Ride-Control seat, appearance improvement, and more space for payloads. If you are thinking of buying a new truck, be sure to write Charles French at Chevrolet Motor Division, General Motors Bldg., Detroit 2, Mich., and ask him to send you photographs and specifications of the new Chevrolet truck line.

Portable Generators

The need for a portable generator in the business of growing vegetables is increasing each day. One grower told me how he used a generator to run his irrigation system and welding equipment. One of the best lines of units on the market is the Wincharger Corporation's new "F" series models. All you have to do is write James Fenlon, Wincharger Corporation, Commerce Building, Sioux City, Iowa.

Tie 'Em Yourself



Many growers who are prepackaging and want to do it without investing in an expensive bag closing machine are having remarkable success with wire ties. One grower reports he can do the job of closing his vegetable bags as securely, easily, and almost as fast as a grower with automatic equipment. Wire ties come in standard lengths, and with Rapimatic tying tools, pictured above, the job can be done quickly. Why not write Harry Smith, American Wire Tie Company, Box 72, Gowanda, N. Y., for particulars? He will be glad to help you.

Water for Profits

Grower Ralph Tuthill of Long Island, N. Y., has increased his vegetable profits by means of modern irrigation equipment. He is particularly fond of his new Marlow irrigation pump which he says "is the heart of my entire irrigation system." Ralph says his system has paid for itself in one year. Why not write George Marlow, Marlow Pumps, Box 566, Ridgewood, N. J.? He will be glad to send you the latest information on planned Marlow irrigation systems.

It's Polyethylene

There is no doubt that polyethylene is very satisfactory for packaging fruits and vegetables. Visking Corp. has just announced a new polyethylene film developed by chemists and engineers at the company's research laboratories. Ink easily adheres to Visqueen "C", thus providing the grower good reproduction of his trade-mark or brand name. We suggest you write James Bunard, Visking Corp., Box AFG1-1410, Plastics Div., Terre Haute, Ind.

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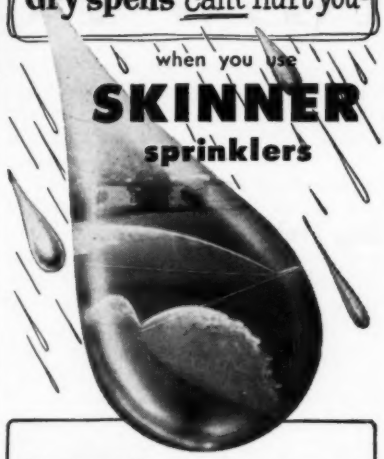

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HYBRIDS

(Continued from page 26)

of less importance in winter squash less emphasis has gone into the production of hybrids of this type. Faribo hybrids R and G, however, are winter squashes which have recently been introduced to midwestern growers.

Early Maturing Watermelons

In watermelons where earliness of maturity is highly important F_1 hybrids have been introduced which combine this feature with desirable horticultural characters. Hybrid Dixie Queen, for example, is similar to the variety from which it was named but it is earlier in maturity and combined with this is Fusarium wilt resistance and good quality. Northland Hybrid and Faribo Hybrid 57 were also developed for growers in the North. Because of the relatively high seed cost there has probably been a greater acceptance among home gardeners than market gardeners to date.

F_1 hybrids of other vegetable crops are available including the OS Cross Cabbage, Vaughan and Faribo Hybrid Peppers, Black Magic and Superhybrid Eggplants, Four-Way Cross Asparagus, and probably others of which the author is not aware.

A discussion of hybrid sweet corn has been omitted for obvious reasons. The question with most market gardeners is not shall I use hybrid corn but rather which of the multitude of desirable sweet corn hybrids shall I use for my specific purpose.

Few of the hybrids previously mentioned are adapted to all vegetable production regions. In fact a phenomenon of this type is unusual in any plant material. It should therefore be remembered that the term hybrid is not going to be a guarantee against crop failure. Where adapted, however, and this may be determined from your agricultural extension service and experiment station or your reliable seed dealers, they may have definite benefits over pure line varieties upon which you as a grower may wish to capitalize.

It is unfortunate where a grower rushes headlong into extensive use of an F_1 hybrid which has not been adequately tested in his locality. Such behavior may cause a resentment against other hybrids which may be beneficial for his use. Awareness of the existence of hybrid vegetables and evaluation of their merits should be done on a similar basis to that in which you would determine the benefits of a variety. Improvements in technics including the use of various forms of plant sterility have provided the plant breeders with a tool for the production of F_1 hybrid seed at a cost which should not be prohibitive. THE END

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American Vegetable Grower

EDITORIALS

Thoughts on Soil Moisture

NEW information is coming out very rapidly on the water requirements of crops and how to satisfy these requirements for best possible production. What led to all the interest on soil moisture is recognition that we do have serious soil moisture problems, much more serious than ordinarily supposed. Study of southern New Jersey farms has shown that during the long growing season, from March to November, average daily deficiencies of almost one-half inch of rainfall or greater can be expected 99.9 per cent of the time. This means that while there may have been enough rainfall throughout the growing season, it did not fall constantly enough.

The Laboratory of Climatology at Johns Hopkins University in Baltimore has studied the problem of rainfall distribution as well as the water needs of crops. By means of these studies it is possible to know to the day when additional water is needed. Work of this kind will eliminate much of the guesswork from irrigation and save growers time and money.

As our nation becomes more and more industrialized the amount of water stored within the earth steadily diminishes. The amount of water used in one day by a modern factory is so large as to be breath taking. River and stream pollution further reduce the water supply while urbanization of areas with countless wells reaching down into the earth to suck out the moisture seriously lowers water tables.

Faced with these prospects, some moisture experts are coming around to the realization that water condensation in the form of dew can furnish a valuable part of the plant's water requirements. Some feel that the crop's ability to utilize dew depends on feeder roots near the ground's surface which in turn depends on the amount and kind of cultivation. The way corn seems to wilt after cultivation on a hot day would seem to bear out this line of reasoning.

A new thought on soil moisture deficiency comes from Missouri where researchers have shown that evidences of drought are somehow tied in with how fertile the soil is. They found that where corn was adequately fertilized, the crop exhausted soil moisture to a depth of neary four feet. Without fertilization, corn roots did not penetrate below two feet and the corn showed signs of serious wilting even though there was enough moisture below the two foot level to make mud balls.

Plants can tap subsoils of low nutrient content for needed moisture if there are sufficient nutrients in the top soil to permit extension of the roots. In many cases, it is believed, proper fertilizing can give as much stimulation to grain as can be obtained by adding water. Does this mean that rate of fertilization should depend to some extent on soil moisture levels?

The soil moisture problem seems to grow more complex the more it is studied. The various considerations deserve every grower's careful analysis for it seems likely that some changes in crop production practices are in store for us as more evidence is uncovered.

Supply Outlook for 1954 Was Never Brighter

THE year 1954 promises to be the most favorable of any in the past three for plentiful supplies of trucks and farm equipment, fertilizers, pesticides, weed killers, and all the many other items necessary for growing and selling vegetable crops. There seem to be only two items which may cause some trouble. One is that perennial worry—labor. However, supplies of manpower for spring vegetable operations should be at least equal to those of a year ago.

The other item expected to be in short supply is one of science's newest developments, polyethylene film which has the almost magical property of allowing gases to escape but prevents the passage of water vapor. It is used for bagging vegetables and since the material is constantly finding new uses, supply has not kept pace with demand. In the next three years, it is expected that new production facilities will more than triple the supply of polyethylene so the shortage should be short lived.

On the farm machinery front, all types of new machinery, equipment and repair parts should be available without any waiting. Even crawler tractors are in moderately free supply. Orders for portable irrigation equipment such as aluminum pipe and revolving sprinkler heads should be placed in advance of need. Production of this type of equipment is barely keeping up with a steadily rising demand.

Nitrogen, phosphorus, and potash will be supplied at a greater rate than the record year of 1952-53 as a result of an expansion of fertilizer production capacity. The problem is one of storage space and keeping supplies moving to the farm. For this reason, it is a good idea to order well in advance of need to allow ample time for delivery.

There is plenty of productive capacity for pesticides but manufacturers may be reluctant to build up inventories adequate to control unusual infestations if they should develop in 1954. Therefore, it is wise to take steps early to assure a supply for at least minimum needs. The synthetic organics such as DDT, chlordane, aldrin, methoxychlor and the organic phosphates will be produced in adequate amounts for normal needs. Imports of rotenone are falling off and if rotenone requirements should increase suddenly, a shortage might develop. All fungicides should be in adequate supply as well as weed killer chemicals such as 2,4-D, chloro IPC, Crag Herbicide and others.

The supply of boxes, crates, baskets and hampers, as well as burlap, cotton and paper bags is ample and no difficulty should be experienced on this score. Transportation facilities including rail and truck should move vegetables to market with no trouble in 1954 although temporary localized shortages may occur because of the probem of car and truck distribution. This means planning harvest dates in advance and keeping rail and truck people well advised.

The number one shortage problem for the country as a whole is labor. More and more it is necessary to provide attractive employment conditions including adequate housing and continuous employment on a year round basis. At the same time close co-operation with local employment service offices is necessary so that what labor is available is utilized efficiently and moved promptly from farm to farm as needed.

Everything considered, the outlook is as good as can be expected. The key to avoiding shortages in '54 is making comprehensive plans well in advance in order to determine needs. Don't wait until the last moment.

Spray and Dust Rolls Around Plants with Buffalo Turbine Concentrate Sprayer

IN SPRAYING or dusting vegetable plants it is important to obtain complete coverage of the plants. A thin layer of protective spray or dust must envelope the plant including the under sides of the leaves. Turbulent air as a carrier for controlling chemicals has been found to be the most effective way of applying such materials. In the Buffalo Turbine the air discharge can be adjusted from a gentle breeze to a hurricane of 175 M.P.H. Such turbulence gives control and penetration over broad areas which is not possible with spray booms. Air blast reaches nooks, corners and places usually inaccessible.

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Michigan Grower Compares Buffalo Turbine With Others

"As you know it was the middle of the dusting season before I purchased my machine, so I had a good opportunity to check the kill of the Turbine applied insecticides against my Row Crop duster. My first dustings were applied with my row crop duster and I used from 35 to 40 pounds of dust on an acre and got just a fair kill. I then started using the Turbine and found that while using less dust the coverage was much better and for the rest of the season I had a 100% kill. I might add that at first I was fearful that I did not have enough dust on the plants, but on examining them I found that there was a perfect film of dust on both sides of the plants. The rolling action of the dust enveloped the plants and dust seemed to boil in the rows a long time after being dusted.

"This last year I dusted about 70 acres with the Turbine, consisting of beans, sweet corn, cabbage, cauliflower, cucumbers, tomatoes and squash. I was able to do on an average of 12 acres an hour and would again say that the dust is put where needed with the Turbine, this especially showed up on cabbage and cauliflower where I was able to get dust on the under side of the leaves and also down into the heart of the plant. During dry season I used water with the dust to make it stick and found this to be a very decided advantage for this machine. I am planning on spraying all my peas this year also.

"I think that this machine is one of the most practical pieces of equipment that can be used in my type of farming. The saving in time and materials in the past season made a very good payment on the machine and also being able to apply the material at the proper time aided in having clean crops."

Won't you be sure to call on us at your vegetable show? If, for any reason, you cannot attend, drop us a line so that we can help answer your questions through actual demonstration.

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Vegetable Grower
MARCH • 1954

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(Commercial Vegetable Grower)

Vol. 2 MARCH, 1954 No. 3

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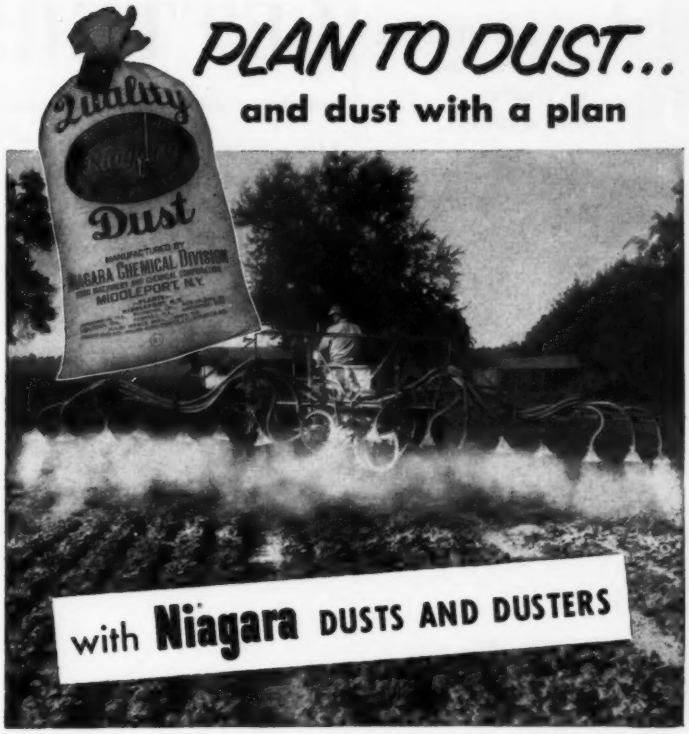

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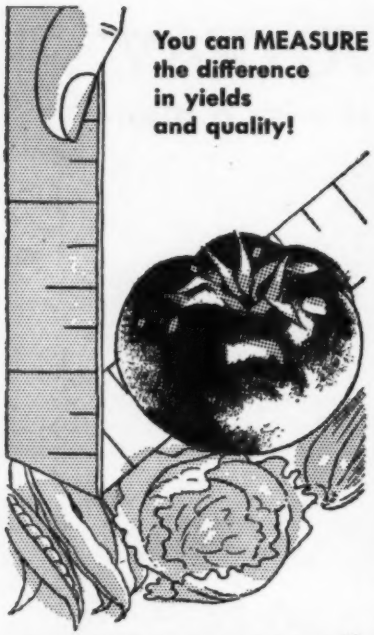

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LETTERS TO THE EDITOR

Likes Editorial on Leadership

Dear Editor:

Glad to tell you that your AMERICAN VEGETABLE GROWER Magazine carries some excellent stories on what the other fellow is doing coupled with what machinery can do to fill the gap left by labor shortage.

Your editorial in the December, 1953, issue on "Leadership" shows good thinking. I am going to mail the clipping to my son who is in charge of Leadership Training at Camp Gordon, Ga.

Regardless of age, farm managers and owners need to read these sound facts you have brought to the surface in this good editorial. Putting into practice such truths would create and maintain good labor relations on the farm.

My sincere thanks to you for writing this and may this year be a prosperous one for both of your excellent magazines.

Mentor, Ohio — R. E. Siegel

Cost Figures

Dear Editor:

I have been interested in recent issues of your magazines in the articles on reducing labor costs. Do you have any cost figures on hand for the labor required in harvesting turnips and parsnips? What is considered a good rate of pay for pulling and topping turnips? Do most growers pay an hourly wage or is the pay based on piece work?

Decatur, Ill. — C. Miller

Michigan growers figure on about 75 to 90 cents per hour for most vegetable workers. This should be equal to approximately 15 to 20 cents per bushel. If the crops could be harvested mechanically the cost would probably be considerably lower. For some areas the price is generally based on piece work and the price paid would depend on the production or the quality or uniformity of the stand.—Ed.

Yolo Wonder Pepper

Dear Editor:

We call your attention to page 11 of your January, 1954, issue in which you state that Yolo Wonder pepper is an Asgrow introduction. Dr. Don Porter of Campbell Soup Co. developed this variety and distributed it to various seed growers.

Santa Ana, Calif. — L. S. Haven

We wish to thank Reader Haven for setting the records straight for our readers. —Ed.

California's Lettuce Industry

Dear Editor:

I was very much interested in the article, "Recent Developments in California's Lettuce Industry," featured in the December, 1953, issue of your magazine. I was especially interested in the portion dealing with lettuce mosaic virus which is a serious disease in California lettuce. I presume that this is the same disease which we in Michigan call "asters yellow." Do you know where I could get further information on mosaic virus and its control?

Grant, Mich. — Grant Scholtens

I suggest you contact Dr. J. E. Welch, Department of Vegetable Crops, University of California, Davis, Calif., who was one of the authors of the article.—Ed.

Electric Hotbed Pays Off

Dear Editor:

Your article on the greenhouse industry in Michigan in a recent issue was of interest to me, and I thought perhaps your readers would like to know about my experiences with hotbeds.

In 1951 I built a 6x9-foot electric hotbed. The cost was as follows: electric cable $11.25, thermostat $7.75, sashes and plastic covering $2.75, lumber $2.50, miscellaneous expense $4.50.

That same spring I grew all the sweetpotato, pepper, tomato, eggplant, cauliflower, and celery plants we needed for family use, plus we sold many plants.

I sold over 1,200 tomato plants in May, 1952, and I could have sold more if I had made my bed twice as large. My 1954 beds are three times larger, and I already have orders for all the plants I can raise.

I find by using electricity, I can have plants ready for setting in our garden whenever I want them, and in winter I can have lettuce, radishes, and green vegetables daily from my backyard.

Hammonton, N. J. — Elgin C. Wade

Onions From Cabbage Seed

Dear Editor:

Yes, "The Best Seed is No Luxury," thanks to your January issue. We here in Walla Walla are going to demand seeds just like the ones shown on page 7. For some 75 years now we have been planting "onion" seed and getting cabbage, "cabbage" seed and getting onions. Our "okra" seed has invariably resulted in carrots. Now, at last, our eyes have been opened.

Walla Walla, Wash. — Joe J. Locati

Dear Editor:

I suppose by now several thousand of your subscribers have called your attention to the switching of captions on page 7 of your January, 1954, issue of AMERICAN VEGETABLE GROWER. However, just in case everybody else has figured that someone else has called it to your attention, I thought I'd mention it to you.

The captions for carrot and okra were reversed as were the captions for cabbage and onion.

Philadelphia, Pa. — L. G. Schermerhorn, Jr.

The onion and cabbage seed on page 7 of our January issue were reversed as well as the okra and carrot seed photos on the same page. We hasten to acknowledge that this was our slip up and not that of author and photographer Victor Boswell, who was kind enough to prepare the pictures especially for AMERICAN VEGETABLE GROWER.*—Ed.*

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BUFFALO TURBINE
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GOWANDA, NEW YORK

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GROWING PLANTS *for the* NORTHERN MARKET

Rigid supervision governs the production of quality plants in a small concentrated area in southern Georgia

By **RAYMOND SHELDRAKE, JR.**
Georgia Agricultural Extension Service

FEW of us ever stop to realize the tremendous importance of a localized industry being carried on in the small area of about eight counties in southern Georgia. A large portion of the eastern shore area and many northern and midwestern states are dependent upon this area for tomato plants. Over 7,000 acres were planted last year to tomato plants. Plants of many other kinds of vegetables also are grown in this area in substantial acreages.

This is a closely supervised, unique industry. The same group of growers for the most part produce these plants year after year under the watchful eye of the Georgia department of entomology and the USDA, both of whom maintain field laboratories in Tifton, Ga.

A large percentage of the plants are grown under contract for large canning companies and many of these companies have their own fieldmen in the area during the period that the plants are being grown.

Acreage of the various varieties of tomatoes grown for certification in 1953 was:

Variety	*Acres*
Rutgers	4,511
Marglobe	93
Valiant	168
F_1 Hybrid	477
Stokedale	52
Garden State	1,238
Others	274

The Coastal Plain Experiment Station recommends that tomato plants be grown in a nematode-free soil. They prefer virgin soil but this is often not possible. If virgin soil is not available, the plants should follow crops highly resistant to root-knot nematode, such as oats, crotolaria, and corn. They should never be planted after cowpeas, tobacco, okra, sweetpotatoes, melons, or other nematode-susceptible crops. In order to further minimize losses from insects and diseases, plants are rarely planted on land that has been used for tomatoes or truck crops for several years.

A good commercial fertilizer is usually broadcast at the rate of about 600 to 800 pounds per acre. Additional nitrogen has to be used in most cases. Growers have developed a technique of "bringing off" the plants of good size at the time they are needed in the transplanting areas.

Most plant growers drill the seed in long rows with multiple-row seeders, the rows averaging about 16 inches apart. At the seeding rate used, three to four pounds of seed are required to plant an acre. Seeding begins in late January and continues through the first part of May. Plants begin to move out in the last week of March and shipments are made through June.

One of the most important factors in the production of tomatoes in this area is disease control. For example, almost 1,800 acres were revoked for the presence of *Aternaria solani* alone.

A rigid spray schedule is recommended by the Georgia department of entomology. Growers can either use one of the organic fungicides, such as Dithane Z-78, zineb, Parzate, or Manzate, or a spray containing fixed coppers. The only acceptible dust formulation contains seven per cent copper.

The first application of fungicide is made when the plants have their first true leaves. Subsequent applications are made at five to seven-day intervals. A pre-pulling application is recommended for two or three days prior to pulling. The entomologists urge growers to apply chlordane in this last spray to give some protection against insects after transplanting.

At plant pulling time truckloads of hands are seen rolling into this area to begin this big task. The plants are taken from the field after pulling to large tobacco warehouses where groups sort and pack them in moss for shipping. Certification labels are attached to the bundles. THE END

Careful inspections are frequently made by members of the Georgia department of entomology. Experiment Station Horticulturist S. A. Harman and Extension Specialist L. E. Farmer are shown in a field of Rutgers tomato plants on the farm of Paul Fulwood, Tifton, Ga.

Methyl bromide, a soil fumigant, kills dormant weed seeds in manure and soil used for plant growing. Left side of this pile of compost manure is untreated; right treated with methyl bromide.

KILL WEEDS Before You See Them

New herbicides prevent costly weeds from developing—but it is important to know which chemicals can be safely used on your crops

By C. F. WARREN
Purdue University

THE use of chemicals to control weeds in vegetable crops has expanded greatly in the past few years. But most of this expansion has not been in selective sprays like Stoddard solvent as used on carrots, rather it has been in the use of the pre-emergence type of herbicides. Many chemicals when applied to the soil surface will kill germinating weed seeds. Some will also control established weeds while others are effective only on the seedlings. They are usually applied after planting but before crop emergence although in some cases they may be sprayed directly over established crops, after a clean cultivation, to kill the later germinating weeds.

Some of the herbicides that were originally developed for use as post-emergence selective sprays have found a real place, at heavier rates, for pre-emergence weed control. These include 2, 4-D, the dinitros, and sodium PCP. Among the more recent introductions, TCA, chloro-IPC, CMU, Alanap 1 (N-1 napthyl phthalamic acid) and Crag Herbicide 1 (SES) are all of the pre-emergence type. There are also contact herbicides that are used to kill small weeds that come up before the crop but have little or no residual effect. These latter materials have important uses but will not be included in this discussion.

Each material has a different type of action and a different range of selectivity on both crops and weeds. For example, chloro-IPC gives good control of smartweed, purslane, chickweed, and annual grasses in spinach but is not effective on lamb's quarters and kills both melons and cucumbers. Alanap 1, on the other hand, will control lamb's quarters as well as purslane, chickweed, and annual grasses in melons and cucumbers but is not effective on smartweed and causes severe injury to spinach. The grower must therefore know both what weed killers can be safely used on each of his crops and which ones give best control of the kinds of weeds present in his fields.

The soil type will greatly affect the rate of application required to control weeds and the danger of injury to the crop. In general, the heavier the soil or the higher the organic matter content, the higher the rate of application required. Chloro-IPC, for example, is used at rates as low as one to two pounds per acre on some light sandy soils but on muck eight pounds or more may be required. Similar examples could be cited for several herbicides. However, TCA and 2, 4-D are not so greatly affected by soil type as regards the rate of application required.

The danger of injury to the crop is often less on the heavier soils or those higher in organic matter since leaching of the chemical to the crop seed is usually slower. For example, a few growers have used low rates of 2, 4-D as a pre-emergence spray on deep planted onions on muck soil, yet the same treatment on mineral soil kills the onions. This, however, will not be an important factor if the crop has true resistance to the herbicide at the rates used. For example TCA moves rapidly in all soil types and usually

Untreated row of field-seeded cabbage. Note crabgrass and broadleaved weeds. Compare with photo on right.

Field-seeded cabbage sprayed two days after planting with five pounds per acre of 90 per cent sodium TCA. Grass controlled but not broadleaved weeds. Compare with photo on left.

Control of midseason weeds in onions after clean cultivation was accomplished in row on right with a spray of eight pounds of chloro-IPC per acre. Row on left untreated.

right behind the planter, especially for beans. The rate of application can be reduced, however, if the treatment is delayed until a day or two before the crop comes up.

Chloro-IPC promises to be one of the leading herbicides for vegetable growers. Extensive field applications are already being made on the East Coast on spinach, lettuce, kale, collards, and cabbage. On muck and heavy mineral soils it has given excellent control of smartweed, purslane, and certain other weeds in onions. In this crop it can be applied either as a pre-emergence or post-emergence spray, the latter treatment being especially good for purslane which usually ger-

Untreated asparagus bed on sandy soil grown up with crabgrass. Compare with photo on right showing treated asparagus bed.

Asparagus bed sprayed immediately after spring disking with four pounds per acre of Alanap. Photograph taken eight weeks following treatment.

comes in contact with the germinating crop seed, yet it is used to selectively control annual grasses in beets and other vegetables. In this case we know that the crop is truly resistant to the chemical.

Another factor that influences results with all of these herbicides is soil moisture. Weed control is generally best if the soil surface is moist at time of treatment or if a rain follows within a few days afterward. Growers equipped with sprinkler irrigation are therefore in an ideal position to obtain maximum effectiveness.

Dinitro formulations such as Premerge and Sinox PE are being widely used to control weeds in snap and lima beans, sweet corn, and potatoes. The chemical is sometimes applied minates late. Snap and lima beans have also shown good tolerance to chloro-IPC but here it must compete with the dinitro compounds. Which material will be best on a given farm will depend to a large extent on the kind of weeds present. In experimental trials, results have also been promising on carrots and celery.

(*Continued on page 26*)

Effectiveness of PESTICIDES

Here is an evaluation of some of the most prominent and promising materials with the insects they control

By JOHN E. SWIFT
University of California

VEGETABLE pest control is complicated by the fact usually that the portion of the plant we are trying to protect is the edible part and therefore selection of the proper pesticide is sometimes difficult. This problem is further complicated by the inconsistency of insect and mite attacks on vegetables.

In certain crops like deciduous fruits, nuts, and grapes, spray programs can be developed and planned for a year in advance. Much of the spraying on these crops is of a preventative nature as the farmer can be rather certain that a given pest or disease will appear if these treatments are not made. To be sure, occasional unexpected outbreaks occur on these crops, but not so often as they do on vegetables.

Usually most vegetable pests appear suddenly and immediate control measures are necessary. Some pests do appear year after year on vegetables but even these vary in their density of population and time of attack; consequently, a spray or dust application cannot be planned for on a given date during a given month. The fact that most of the pests appear at infrequent intervals and at different population levels serves to make vegetable pest control a very dynamic process.

Occasionally a pest that has not been known to attack vegetables will suddenly become a pest and cause a serious loss before it is discovered. An example of this was the attack by the California tussock moth on broccoli in California last year.

An effective pesticide for vegetables is one that will kill the pests over a long period of time, will not upset the beneficial insect balance, the drift from the application will not harm man, animals, or pollinating insects; it will not leave a harmful residue and will not injure the plant. Realizing that such a material as this would be nearly impossible to produce, we must use the insecticides available and plan our programs so that we can obtain as many as possible of the above-mentioned goals.

In an effort to accomplish this, control programs frequently do not include the most toxic nor the longest lasting materials available. Recommendations for control of pests should be "tailored" for the individual pest on a specific crop. By doing this we can fulfill many of the desirable features of the previously mentioned ideal insecticide and at the same time eliminate some of the most obviously detrimental features.

Timing is a critical factor in vegetable pest control and the selection of the proper material is dependent upon the time of the attack. Because of these many factors that must be considered we feel that best results can be obtained from a program which we in California term as "Supervised Control of Insects." In a program of this nature a trained entomologist will observe and recommend pest control measures on a given number of acres. This will usually vary from 7,000 to 9,000 acres.

This man visits the crops at least once a week and oftener if necessary and is thus able to find an infestation in its earliest stages. He then watches the infestation and recommends control measures when he feels the time is most appropriate. The supervising entomologist considers all phases of the problem such as the economic level of treatment, effect of predators and parasites, off flavor because of an insecticide, phytotoxicity, and cost. This method gives a farmer assurance of a well-balanced program and the best control measures available at that time.

We are fortunate at this time to have a host of pesticides to use on the various pests that bother vegetable crops. It would be nearly impossible to categorically define all of the pesticides in their order of performance because of the specificity shown by the various materials. However, we can be assured that there is a pesticide available for most of the major pests. A true evaluation of the effectiveness of the various materials is based on many factors and in some cases an extremely short residual effect makes a certain material more valuable that a material with a long residual effect, and of course the opposite is true for other pests on other crops.

Root system of honeydew melon injured by larval feeding of cucumber beetle. Photo by A. E. Michelbacher, University of California.

Some of the most prominent and promising materials are mentioned below:

DDT is probably the best known of the newer insecticides and probably is the most widely used in vegetable crop production. It kills by contact and as a stomach poison. It is effective against most caterpillars, beetles, cutworms, armyworms, thrips, many leafhoppers and other true bugs, some aphids, whiteflies, and other insects of that nature. It is a preferred material because of its long lasting effect and its ability to kill many different kinds of insects.

It has some disadvantages: the long residual effect makes it undesirable to

DES on VEGETABLES

melon injured by beetle. Photo by ty of California.

her vegetable rly impossible ll of the pest- performance ity shown by However, we e is a pesticide e major pests. e effectiveness s is based on ome cases an l effect makes valuable that residual effect, site is true for ps. rominent and re mentioned

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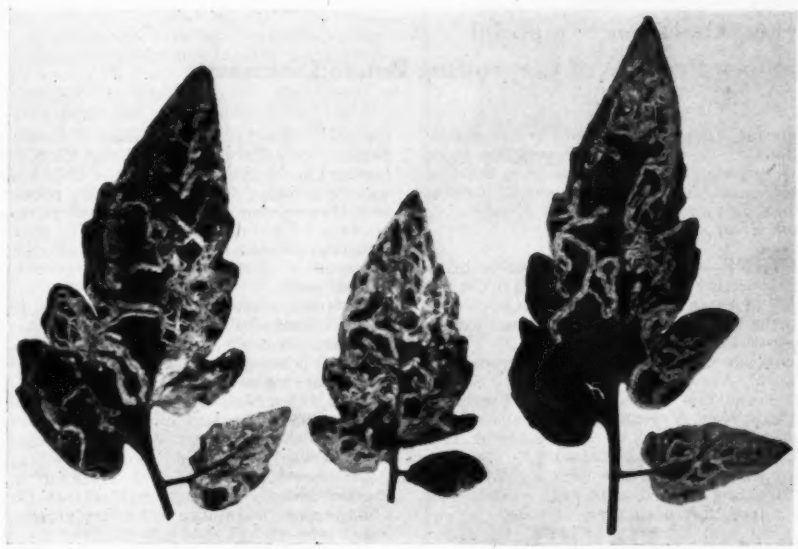
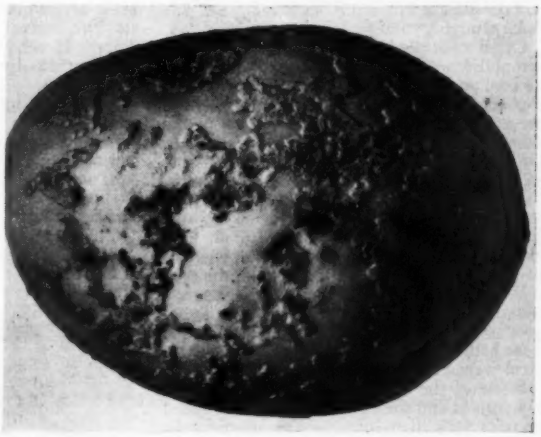
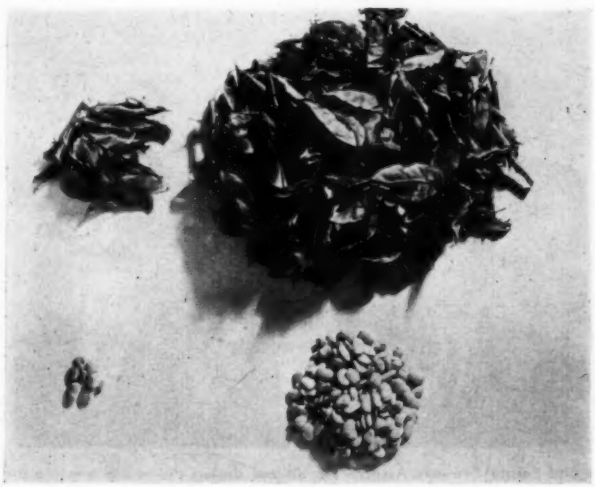


Leafminer injury to tomato leaflets. Photograph by A. E. Michelbacher.

use on the edible portions of crops; it will also kill many beneficial insects; and large spider mite populations may develop because of its use. It can be stored in the body-fat of animals and therefore should not be used on that portion of the crop that may be eaten by man or animals. In spite of its dis-



Cucumber beetle injury to honeydew melon. Light colored corky tissue is result of adult feeding; dark pitted areas in center caused by larval feeding. Photograph taken by A. E. Michelbacher.



Effect of Lygus bug feeding on lima beans. Small pile on left, from DDT-treated area, shows total number of injured beans and pods from 50 plants. Large pile on right shows total number of injured beans and pods from untreated area. Photo by W. W. Middlekauf, University of California.

advantages it is still one of our most effective and useful pesticides in vegetable production.

Benzene hexachloride is another chemical that is used sometimes in vegetables, but it is much more restricted than DDT. It does not control quite an many insects as DDT, but it does control some that DDT is not effective upon. However, its disagreeable odor and its ability to impart off-flavors to certain vegetables and its high phytotoxicity to certain crops, especially cucurbits, have restricted its use. The pure gamma isomer of BHC has a somewhat wider use but it is still much less than DDT. It will control grasshoppers, many aphids, stink bugs and other true bugs, some caterpillars, and wireworms. It is not highly recommended as a vegetable crop pesticide.

Toxaphene is a material that has had a somewhat restricted usage but as time goes on more uses are being found for it. It has shown up quite well on cutworms and several other types of caterpillars and it is effective on grasshoppers, stink bugs, Lygus bugs, leafminers, some scale insects, and several kinds of beetles. However, it is very destructive to many beneficial insects, it injures some cucurbits seriously, and is more toxic to warm-blooded animals than DDT. This latter effect is somewhat nullified by its shorter residual effect than DDT, but this is still not enough to suggest its use on edible portion of crops.

Chlordane, another new material, has a somewhat more limited usage than some of the other materials, but it is very good against certain pests. It is very effective against ants, crickets and grasshoppers, and certain seed and bulb maggots. It is effective on some caterpillars but, on the whole, is not too good for caterpillar control. Although it is a good insecticide, it is not too widely used on vegetable crops because of its specificity.

(*Continued on page 24*)

STATE NEWS

- **Oregon Launches Attack on Symphilid**
- **New Materials Show Promise of Controlling Potato Diseases**

GEORGIA—Many growers are getting ready to plant pimiento peppers for the first time this year. This has been brought about by the decreased acreage in cotton and other crops. Growers are urged to get a copy of bulletin No. 277 which is available at their county agent's office or from the Georgia Experiment Station, Experiment, Ga.—*Raymond Sheldrake, Jr., Asst. Ext. Hort., Athens.*

OREGON—Plans for an accelerated attack on the symphilid were made at a recent special industry meeting in Portland. The symphilid, a tiny, wormlike pest, annually costs Oregon and Washington truck and nursery crop growers many thousands of dollars.

The raw product committee of the Northwest Canners Association, headed by Donald Burnett, Portland, has taken the lead in the attack and a "symphilid defense committee" was set up for the purpose of raising funds for research work at Oregon State College where H. E. Harrison, entomologist, has been studying the pest for some 16 years.

Often miscalled "insect" or "worm," the symphilid actually has a classification all of its own and is thought by some experts to be a connecting link between the centipede and the true insect. The symphilids stay in the subsoil during the cold weather, coming to the topsoil in the spring and summer to dine on seeds and fine root hairs of many plants.

The pest is described as a small, white, centipedelike animal which varies in size from one-eighth to one-quarter of an inch long. The threadlike, delicate creature has 12 pairs of legs; moves rapidly through the soil.

Whatever his classification, the "simp" causes considerable damage in the way of poor stands and stunted growth of plants. Loss estimates as high as $5,000 on a single farm were reported this past year.

Some of the new chemicals offer promise as controls and the committee hopes to speed up tests with them by providing more funds. —*Harold and Lillie Larsen.*

CALIFORNIA—Planting conditions for Kern County potatoes have been ideal during the past weeks. The early crop at Edison is now planted with about 9,500 acres. It is estimated that Kern County plantings will be somewhat reduced from last year's crop.—*D. N. Wright, Farm Advisor, Bakersfield.*

KENTUCKY—Allyl alcohol has repeatedly shown promise at the Kentucky Agricultural Experiment Station as a weed killer, especially for plant beds, greenhouses, hotbeds, and cold frames: Recent experiments have shown it to be a powerful fungicide in the control of damping-off. Allyl alcohol not only destroys weed seedlings (both grasses and broadleaf weeds) but weed seed as well. Its principal disadvantage is the fact that large quantities of water are needed in applying it as a soil drench. Allyl alcohol has not been available commercially as a weed killer, but one company is now making plans for its distribution. A progress report on this material is available from the University of Kentucky department of horticulture, Lexington.—*J. Edward Klinker, Assoc. Hort., Lexington.*

MAINE—A commercial vegetable growers' meeting will be held on April 6, the first day of Farm and Home Week (April 6–8) at the University of Maine, Orono. Featured out-of-state speaker will be M. T. Vittum, associate professor of vegetable crops, New York Agricultural Experiment Station, Geneva. His subjects: "New Fertilizers Mean New Vegetable Fertilization Practices," and "How to Use 'Natural Heat Units' in Vegetable Growing." The day's program will conclude with a color movie, "Breeding Better Food Crops."—*Robert W. Paulson, Ext. Veg. Spec., Orono.*

OHIO—On February 1–3 the Ohio Vegetable and Potato Growers Association held its 39th annual meeting in the Commodore Perry Hotel, Toledo. Presiding over the meeting was Ferris Owen, vegetable grower of Newark.

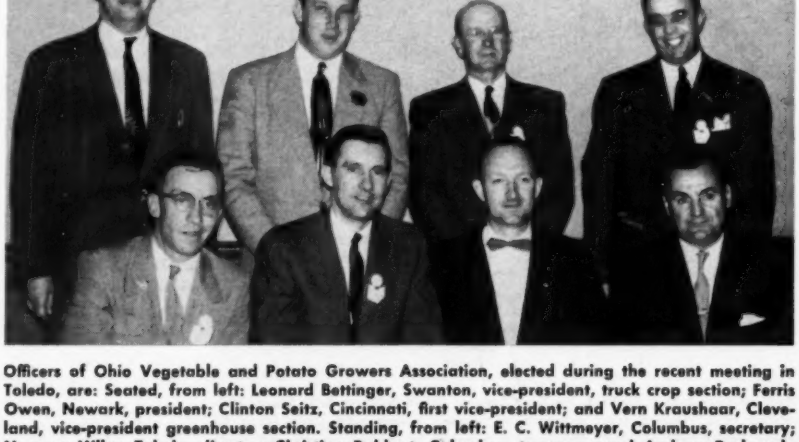
Of special interest to potato growers was the discussion of potato insect control by J. P. Sleesman, entomologist at the Ohio Experiment Station. He pointed out that the new material dieldrin when combined with DDT makes one of the best potato sprays. Practically all foliage insects can be controlled satisfactorily with these materials.

Marketing problems and their solution were high on the potato growers' program. Carroll H. Bartter, grower from Columbia Station, led a discussion on what it takes to market Ohio potatoes. His point of emphasis was the growing of a superior quality potato first, then combining the efforts of all growers to sell Ohio potatoes in Ohio. The state consumes considerably more potatoes than is produced in it, hence the market is considered good.

Greenhouse operators were interested in R. B. Neiswander's discussion of the limitations of the honeybee in pollinating tomatoes, and what is being done to make pollination of greenhouse tomatoes more satisfactory. I. C. Hoffman described much of the research work at the Ohio Agricultural Experiment Station with greenhouse crops. L. J. Alexander described the breeding program to produce new tomato varieties resistant to mosaic, blotchy ripening, and wilt at the Ohio station. The future looks very promising.

How to grow plants, and grow them to perfection, came in for a roundtable discussion by growers and specialists from the experiment station. The trend is to grow plants in sand and peat mixture or in sand alone rather than in soil. This medium gives the grower better control over watering and nutrient level, thus enabling him to grow plants that are healthy and have an adequate root system.

Nematodes and some recently discovered methods of controlling them were described by Keith Barrons. For field fumigation he suggested the use of ethylene dibromide or dichloropropene, and for plant beds methyl bromide or chloropicrin can be used. His ob-



Officers of Ohio Vegetable and Potato Growers Association, elected during the recent meeting in Toledo, are: Seated, from left: Leonard Bettinger, Swanton, vice-president, truck crop section; Ferris Owen, Newark, president; Clinton Seitz, Cincinnati, first vice-president; and Vern Kraushaar, Cleveland, vice-president greenhouse section. Standing, from left: E. C. Wittmeyer, Columbus, secretary; Norman Miller, Toledo, director; Christian Babbert, Columbus, treasurer; and Andrew Rosbough, Berea, director.

servations and studies indicate these pests to be more prevalent in the North than has heretofore been thought to be the case.

R. L. Carolus of Michigan State College reviewed the history of vegetable prepackaging and pointed out that the future holds many changes. The alert grower keeps posted on what is happening. In another session Dr. Carolus discussed several phases of the irrigation problem.

Varieties of vegetables described by W. N. Brown of Ohio State University as being outstanding in performance included Golden Security and Calumet sweet corn, Canadian Acre cabbage, Waltham 29 broccoli, Yolo Wonder and Illinois F5 peppers, Gold Spike and Imperata carrots, and Utah 5270 celery.

Breeding new varieties of vegetables, especially those resistant to diseases, was the subject of Victor R. Boswell of the USDA Research Center, Beltsville, Md. Growers were shown and told of some of the problems that plant breeders and other research men come up against in attempting to solve their problems.

The American Farm Bureau Federation's fruit and vegetable department is now under the direction of John C. Datt. Datt joined the AFBF staff in October, 1950, as assistant director of the department. He is a native of Gibsonia, Pa., and was raised on a dairy and vegetable truck farm. He has a Master of Science degree from Pennsylvania State College, where he specialized in the marketing of fruits and vegetables. The AFBF is located in Chicago.

John C. Datt

F. S. Howlett, head of Ohio's department of horticulture, described the research work with leaf analysis of vegetable plants. This method soon may be a better guide to fertility treatments than soil analysis.

Pest control problems were handled by a panel consisting of E. K. Alban, Dr. Neiswander, T. H. Parks, B. F. Jansen, all of the Ohio Experiment Station, and A. D. Taylor of F. H. Woodruff & Sons, Toledo. Of particular interest was the discussion of Stewart's disease of sweet corn. Dr. Neiswander pointed out that proper control of insects is a key to controlling this disease. Taylor pointed out that if the total of the average temperatures for December, January, and February adds up to more than 90°, the disease will be serious; if below 90, it will not be serious.—*Eldon S. Banta.*

NEW YORK—"Americans are eating more sweet corn than ever before," Dr. Lloyd Davis, Cornell University agricultural economist, told the 75 growers from eastern New York who attended the recent regional conference on sweet corn quality at Kingston. With new growing areas developing, continued efforts must be made to produce a high quality product, he said.

Dr. F. M. Isenberg of Cornell explained how hydrocooling removes field heat quickly from corn, resulting in higher quality corn that can be shipped and still retain its high quality. George Barthel, vice-president of Bar Ro Acres, Wawarsing, described the use of wet strength paper bags and ice for shipping; and George Kessel, American Stores Co., pointed out the preference of both stores and consumers for iced sweet corn.

Chairman of the conference was William Palmer, Ulster County agricultural agent.

(*Continued on page 14*)

CUCUMBER PLANTS TREATED WITH ALANAP-I, THE PRE-EMERGENCE WEED-KILLER

Far less weeding cost with **ALANAP-I***!

UNTREATED WEED-CHOKED CUCUMBER PLANTS

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Alanap-1 can save you up to $150 per acre by killing weeds before they appear. That means a greater profit margin...many more dollars for you. And you pay surprisingly little per acre for this amazing new chemical that kills a wide variety of weeds.

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Oliver Iron Age Vegetable Planters give you better stands, bigger yields year after year. Here's the reason for this performance: the exclusive Iron Age Band-Way method of culture makes up the bed, sows the fertilizer, plants and covers the seed—all in one, quick accurate operation. Band-Way stops fertilizer injury, leaching and fixation — uses less fertilizer *more* effectively. Make sure your vegetable crops pay off with Iron Age. See your Oliver Iron Age Dealer!

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STATE NEWS

(*Continued from page 13*)

IOWA—The Iowa State Vegetable Growers Association convened for its 40th annual meeting recently in Mason City.

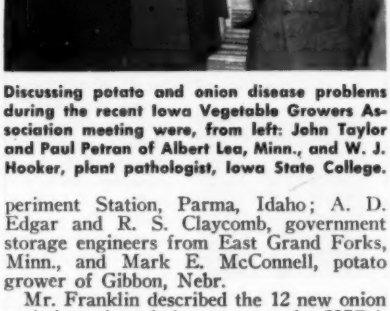
Discussions at this meeting are concentrated on production and marketing of potatoes and onions, the two major vegetable crops of the mucklands of northern Iowa and southern Minnesota and Wisconsin.

Among out-of-state speakers were D. F. Franklin, superintendent of the Branch Experiment Station, Parma, Idaho; A. D. Edgar and R. S. Claycomb, government storage engineers from East Grand Forks, Minn., and Mark E. McConnell, potato grower of Gibbon, Nebr.

Discussing potato and onion disease problems during the recent Iowa Vegetable Growers Association meeting were, from left: John Taylor and Paul Petran of Albert Lea, Minn., and W. J. Hooker, plant pathologist, Iowa State College.

Mr. Franklin described the 12 new onion varieties released the past year by USDA plant breeders and presented production data showing their qualifications over present varieties. It will be a few years, Franklin pointed out, before seed of the new varieties will be generally available.

Harvesting and storage handling of potatoes and onions, discussed by Edgar and Claycomb, attracted a lot of grower interest. Their emphasis was largely upon the use of large pallets for storage and their handling by fork lift trucks as a way to reduce labor costs. Many of their studies have been carried out at Sam Kennedy's farm, Clear Lake, Iowa, who has one of the largest pallet storages in the country.



Irrigation was the subject on the minds of these growers when the photographer "snapped" them during the Iowa Vegetable Growers Association meeting. From left: Martin Hoyer, Washburn, N. D.; Mark E. McConnell, Gibbon, Nebr.; and J. P. Hansen, Otranto, Iowa. McConnell was on the program, discussing his irrigation practices.

Since this muckland area had just experienced a very dry growing season, growers were much interested in the possibilities of irrigation. At present little is done in this area. Mark McConnell told how he irrigates 160 acres of potatoes from two wells on his Nebraska farm. McConnell also discussed the root pruner he built and uses to cut off

CALENDAR OF COMING MEETINGS & EXHIBITS

Mar. 22–23—Kern County Potato Growers Association meeting, Bakersfield, Calif.—D. J. Maupin, Sec'y, Bakersfield.

Apr. 5–8—National Packaging Exposition, Atlantic City.

Apr. 6–8—University of Maine Farm and Home Week, Orono. Apr. 6—Home Vegetable Garden in A.M.; Market Garden all day; Apr. 7—Processing Crops.—Robt. W. Paulson, Veg. Spec., Orono.

Apr. 26–28—Conference on transportation of fresh fruits and vegetables, University of California campus, Davis.

Sept. 23–25—Texas Citrus and Vegetable Growers and Shippers, Inc., annual meeting, Baker and Adolphus hotels, Dallas.—Austin E. Anson, Exe. Mgr., 306 E. Jackson, Harlingen.

Sept. 28–30—Florida Fruit and Vegetable Association annual meeting, Sans Souci Hotel, Miami Beach. Association headquarters: 4401 E. Colonial Drive, Orlando.

potato roots at harvesttime to aid in drying of the vines and ripening of the potatoes.

James R. Kennedy of the Sam Kennedy Farms described the practices they are using to prevent blowing of muck, a big problem in many spring planting seasons. The Kennedys do no plowing of muck as they formerly did. In the rotation, onions usually follow sugar beets. The beet tops are left on top of the ground, in the spring the field is worked over with a springtooth harrow, leveled with a drag, and planted to onions.

The trash mulch effect helps prevent the blowing of the muck until onions are up. Cultivation is delayed as long as possible so as not to destroy this effect. Since a wheel-type onion planter is used, the trash does not interfere with planting.

Several Iowa State College specialists discussed subjects in their respective fields of work. E. P. Lana reported results of potato spacing studies, pointing out that varieties vary in their optimum spacing distance between seed pieces. He also reviewed chemical weed control work on onions. His report suggested to growers that 2, 4-D as a pre-emergence control can give up to 80 per cent control until three weeks after onions are up. Sulfasan at 40 pounds per acre is proving a good control after weeds are about one and a half inches high. The specific weeds that must be controlled is of prime importance as to the effectiveness of any chemical.

Potato and onion diseases with their control measures were discussed by W. J. Hooker. He reported work with a new chemical from Mathieson Chemical Corp. which promises to be of assistance in controlling potato scab. Potato and onion breeding work at Iowa State was reviewed by C. E. Peterson. Dr. Peterson is leaving Iowa March 1 to assume new duties in plant breeding at Michigan State College, East Lansing.

The association voted to return all officers to their respective posts for the year 1954. These include Orville Thoreson, Swea City, president; James R. Kennedy, Clear Lake, vice-president; and C. L. Fitch, Ames, secretary-treasurer.

CONSOLIDATION ANNOUNCED

ALLIANCE Rubber Company, Alliance, Ohio, has announced the consolidation of its Gulf Division plant at Slidell, La., with its Southwestern Division plant at Hot Springs, Ark., and the completion of additional production facilities at Hot Springs.

Alliance is the originator and exclusive producer of the "Open Ring" type of band, of which there are over 300 types used for bunching or tying vegetables or to fasten plastic bags.

Look at these outstanding results on tomatoes . . .

as reported by users of Du Pont MANZATE®

One chemical now does the job of controlling the major diseases on tomatoes. It's Du Pont "Manzate" fungicide. And it not only makes disease control a lot simpler, but also helps produce record yields. Read these typical reports:

"Averaged approximately 25 tons per acre. 'Manzate' did a good job in controlling anthracnose, early blight, and Septoria . . . was a very big factor in enabling me to market the largest yield I have ever grown". . . Chester C. Mauch, Lindsey, Ohio.

"Anthracnose, early blight, and Septoria have been real problems. This year we used a 100% 'Manzate' program, and disease control was the best we ever had. Quality was excellent, and our average yield of 24 tons per acre was the highest we ever had". . . Dean Keller, Blissfield, Mich.

"My crop was entirely free from disease . . . and graded an exceptionally high percentage of No. 1 tomatoes". . . Arthur G. Schroeder, Des Plaines, Ill.

Yes, use "Manzate" all season long. No other product has done as well in controlling tomato diseases and helping to grow high yields of top-quality fruit. Get "Manzate" in 3- or 25-lb. packages.

On all chemicals always follow directions for application. Where warning or caution statements on use of the product are given, read them carefully.

This leaflet...tells how to get best results from this new Du Pont fungicide. See your dealer or write to Du Pont, Grasselli Chemicals Dept., Wilmington, Delaware.

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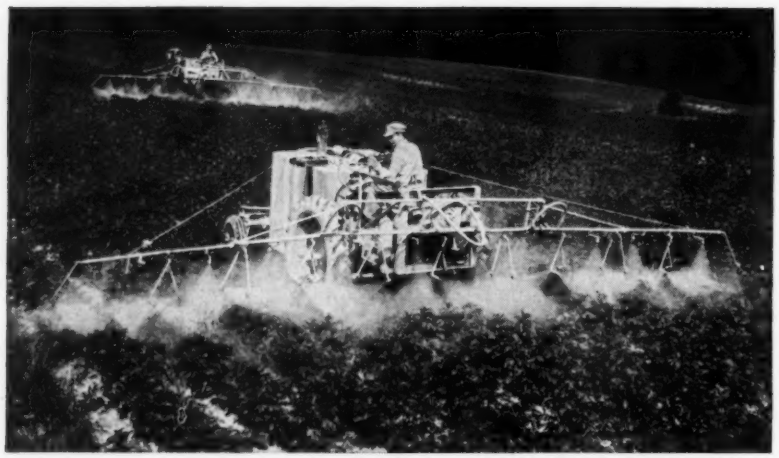
. . . THROUGH CHEMISTRY



For high yields and low-cost blight control...

There's nothing better than Du Pont "Parzate" fungicide. Potato and vegetable yields go up when you control blights and other diseases with "Parzate." It's a mild, effective chemical that does the job without stunting or burning . . . gives your crops vigorous growth and increased yields!

Use "Parzate" for potatoes, onions, tomatoes, celery, spinach, melons, cucumbers, beans, peppers, sweet corn and other vegetables. There's "Parzate" liquid for quick-mixing sprays, or "Parzate" dry for sprays or dust mixtures.

* * *

For many special insect-control problems use the performance-tested insecticide

"Marlate" methoxychlor does the job effectively and safely. You get both contact and residual control. Its low toxicity to humans permits use within 7 days of harvest.

On cucumbers, squash, melons, "Marlate" controls both striped and spotted cucumber beetles, squash vine borer and pickleworm without injuring these sensitive plants.

It is excellent for Mexican bean beetle and leafhoppers or snap and lima beans. On DDT-resistant Colorado potato beetles, leafhoppers and flea beetles, "Marlate" has given outstanding control.

On many other crops, "Marlate" controls such insects as asparagus beetles, cabbage worms, blister beetles, flea beetles.

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BETTER THINGS FOR BETTER LIVING . . . *THROUGH CHEMISTRY*

VGAA WORKSHOP CONFERENCE

USDA learns first-hand about industry problems

THE second annual Workshop Conference of the Vegetable Growers Association of America was a huge success. Held in February in Washington, D. C., to acquaint government and USDA leaders with the problems of growers, the conference was attended by more than 250 vegetable leaders including senators and congressmen.

Released acreages came in for considerable discussion. John Wickham. Long Island potato grower and president of the New York State Vegetable Growers Association, pointed out that released acreages will be a problem particularly in Kern County, California, where the shift will be from cotton to potatoes, and in the Red River Valley, where wheat acreages are being cut.

It was pointed out that because of low potato prices, the problem is not expected to be serious this season but could be important for 1955 if growers have anywhere near a good season this year.

Potato Grades

On the subject of proposed changes in U. S. potato grades, W. F. McCaleb, Jr., executive vice-president of the Association of Virginia Potato and Vegetable Growers, Inc., told the USDA that growers should have been consulted about the proposed changes before they were released. McCaleb felt that the changes were made without advice from growers and that if the changes were put into effect they would be harmful to the Virginia potato growers.

Import Problems

Gustave Burmeister, assistant administrator of the Foreign Agricultural Service, told growers that by and large there were two major import problems. One is with Canadian potatoes and the other with Mexican tomatoes.

Burmeister encouraged growers to get together with the Canadians to talk over mutual problems regarding potato marketing. He said that in many cases in the past where the government was unable to solve an import problem, growers have been able to reach partial and in many cases satisfactory solutions by getting together

with the importers and discussing ways and means of reducing the pressure on the market.

Luther Chandler, director of the Florida Fresh Fruit & Vegetable Growers Association, said that the Foreign Agricultural Service needs more funds in order to obtain more detailed facts and figures on foreign trade in agricultural commodities.

The second day of the conference talks were presented by H. Denton Williamson, American Stores Company, on what the consumer wants in vegetables; by Allen Rains, United Fresh Fruit & Vegetable Association, on terminal markets; by Lee Womak, president of the New Jersey Auction Market, on services by auction markets; by Albert Van Ripper, Newark, N. J., Farmers Market, on services by farmers' markets.

Also on the program were E. J. Burress, Safeway Stores, who spoke on services by the chain stores, and Lewis Fox, president of District Grocery Stores, Washington, D. C., whose subject covered services for cooperatives and independent wholesalers. THE END

Secretary of Agriculture Benson and VGAA President Lee Towson were so busy making last-minute changes in their speeches to be presented during the Workshop Conference that they seemingly neglected pretty national vegetable queen Elaine Kernan of Bridgeton, N. J.

Secretary of Agriculture Ezra Taft Benson was honored at a special testimonial dinner by vegetable growers. A. Lee Towson, president of the VGAA, presented Secretary Benson with a silver bowl as an expression of appreciation from vegetable growers for his leadership as Secretary of Agriculture.

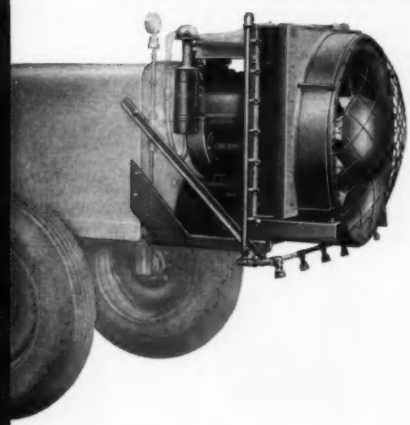
Secretary Benson said that a year ago he made a speech in the Northwest telling about the danger of concentration of power in the federal government and that too many Americans are calling on the government to do what they should and could do themselves. He reported that one of the first organizations to come to his support after that widely criticized speech, was the Vegetable Growers Association of America.

Secretary Benson said that he believes more wholeheartedly today than ever before that our freedom must be continually guarded as something more precious than life itself, and that no man can be completely free who depends upon the state. He said that a planned economy destroys the character and hurts morale and we must help individuals to help themselves with a minimum of government assistance.

MIST SPRAY YOUR ROW CROPS FOR HIGHER YIELDS, LOWER COSTS

The new John Bean Speedaire Row Crop Spreader blankets a field of potatoes.

THE JOHN BEAN SPEEDAIRE



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Faster, more thorough coverage with savings in time and spray materials are being reported by every grower who used the SPEEDAIRE during the past season. Dilute, low-gallonage, or concentrate spraying are a matter of choice. Problems of uneven terrain and unwieldy booms can be ignored. The spray pattern can be easily controlled to meet wind and crop conditions. You get all the advantages of modern air-type spraying with this new John Bean Speedaire conversion unit for high pressure field-crop sprayers.

The Speedaire can be easily mounted on your present high-pressure sprayer of 20 G.P.M. capacity or larger.

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This Montgomery Ward Garden Tractor handles many variable load applications.

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YOU GET Power to Fit the Job and the Machine — plus the most efficient AIR-COOLING at all engine speeds within the engine's work-load operating range.

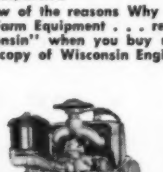
YOU GET Top Performance Under All Weather Conditions, plus low-cost maintenance and long engine life.

YOU GET Quickly Available Service through Authorized Wisconsin Engine Dealers and the dealers of farm equipment manufacturers who use these engines for powering their equipment.

These are a few of the reasons Why Wisconsin Engines are *Best* for your Farm Equipment . . . reasons why you should specify "Wisconsin" when you buy new power machinery. Write for free copy of Wisconsin Engine Bulletin No. S-154.

This Wisconsin-powered Carver irrigation pump illustrates a Heavy-Duty Continuous Load.

4-cycle single-cylinder models, 3 to 9 hp.



2-cylinder models 7 to 15 hp.

V-type 4-cylinder models 15 to 36 hp.

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Power TO FIT THE MACHINE

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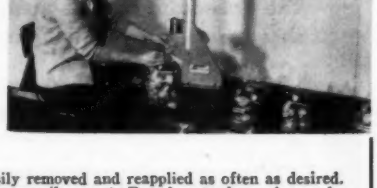
Many of the most successful growers have found that they can get 2 or 3 times as much for their vegetables in bulk by pre-packaging in polyethylene bags.

The Trescott right angle belt conveys filled bags to central closing station without spilling. Kwik-Lok closer enables non-skilled help to close bags quickly and easily. Uses plain or special printed tags (with plain bags). Note these other advantages:



1. Maximum consumer appeal. . . . 2. Closure easily removed and reapplied as often as desired. . . . 3. Price, etc. easily written on tag with ordinary pencil. . . . 4. Brand or trade mark may be printed on tag. . . . 5. Sold right, serviced promptly by pre-packaging experts.

Write today for complete information and prices.

The TRESCOTT Company

Dept. K
Fairport, New York

GROWING SWEETPOTATO PLANTS

The Wolfords of Iowa produce them mainly for mail orders

By ELDON S. BANTA

THE PRODUCTION of sweetpotato plants has developed into a major business at the Wolford Brothers' farm, Conesville, Iowa. It isn't a new business to Jason Wolford, who now operates this eastern Iowa sand farm. The beginning dates back to about 1918 when Jason's father and brothers began growing sweetpotato plants for sale, hence the firm name, Wolford Brothers, Inc. Now it is a sizable mail order business. All plants and potatoes are sold under the brand, "Oasis."

The enterprise has grown steadily through the years and recently Jason has placed more emphasis on this phase of their vegetable business. Early each spring Jason and Mrs. Wolford make up and mail out copies of their catalog to over 4,000 potential customers. This is usually a 15-page booklet which describes the varieties that are offered, gives some suggestions on sweetpotato culture, and includes order blanks. Not only are plants sold this way, but seed potatoes too, in the same varieties as the plants.

In 1953 the Wolfords grew over a million and a half sweetpotato plants. A fourth of them they used to set their own 60 acres, the remainder were sold, the bulk going out by parcel post to over half the states in the Union. Demand far exceeds the number of plants they are now able to grow and sell, so they are considering expanding.

Good Market

This is one of the few places in the near north where sweetpotato plants are grown and sold on a commercial scale, hence the market is good. Some plants are sold direct to sweetpotato growers in other areas of the country, but the bulk of Wolford customers are greenhouses and plantsmen. To some of these, the Wolfords ship a given number of plants each week in the spring season; other customers order periodically. These local plantsmen in turn sell the plants to their customers, mostly home gardeners.

For the past few years the Wolfords have received $5 per thousand plants and $5 per bushel for seed potatoes. The customers pays the post-

One of five plant beds where Jason Wolford grows a million and a half sweetpotato plants. Canvases are used to cover beds in place of glass. During day they are rolled up to let in sunlight.

age or express, and no customer is too small to be considered. They mail order from 100 plants to 100,000, though they prefer the smaller orders. Over the years the greenhouses and local plantsmen have proved to be the most consistant buyers. They can plan for these customers each year, where they cannot for the large commercial orders.

The plant selling season extends from May 1 to June 15. Proper packaging of plants is an important procedure. When an order is received the plants are pulled from the bed, the soil shaken from the roots, the plants dipped into water up to the leaves and then wrapped immediately with about an inch of tops showing.

A special wrapping paper is used, made by the Graham Paper Company of St. Louis, Mo., which, when wet does not tear or go to pieces. Since it holds moisture well no additional wrapping is used around the roots, thus shipping weight and postage are left at a minimum. Plants are wrapped 100 to a package. On larger orders, 20 packages, or 200 plants, are packed to a bushel basket, roots down, and covered with a shingle lid. Shipments are made the day plants are pulled.

Plant Growing Practices

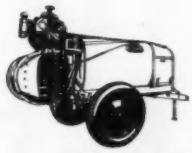
Jason Wolford says, "Maybe we seem old-fashioned, but we still like to make up our plant beds with manure." He feels that manure keeps moisture more constant in beds and heats them more evenly than do hot-water pipes. At least he points to the fact that, in contrast to growers using hot-water heat, he has never had an unsatisfactory bed of plants. It is also easier and quicker for Jason to make his beds with manure.

His procedure is as follows: He starts hauling manure in December or January, whenever he can get it. He prefers buying it by the carload from packing plants in Cedar Rapids for $1.50 per ton, just the cost of

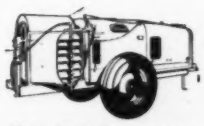
(*Continued on page 20*)

"A Myers Concentrate Sprayer Attachment helps us produce some of the cleanest certified seed potatoes in the state", says E. G. S. GAGNIER,
Gagnier Brothers, Churubusco, New York

GAGNIER BROTHERS POTATOES, CERTIFIED FOR SEED ON AUGUST 14, 1953, WERE DECLARED BY NEW YORK INSPECTORS TO BE AS DISEASE-FREE AS ANY IN THE STATE.



Field Crop Concentrate Blower Attachment



Field Crop Concentrate Sprayer

Every season more leading growers everywhere are finding concentrate spraying an improved, lower cost way of protecting crop quality. They know, too, that either a Myers Concentrate Sprayer or Concentrate Attachment will do a thorough job of applying low-water solutions of 4X or more.

They produce minute droplets of just the right size and spray them at a high velocity in a large volume of air. This assures thorough penetration of plants and even coverage of leaves and stems—better disease protection.

On rolling ground, the tractor operator can adjust the spray pattern easily without leaving the tractor seat and keep the spray where it belongs at all times. These features and many more can be explained by a nearby Myers sprayer dealer.

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First with — shaft seal under suction, virtually ending seal failures in the field.

First with — large drum-type fuel tank — for three times as long unattended operation.

First with — engineered units; pump designed for best operational efficiency at engine's best range.

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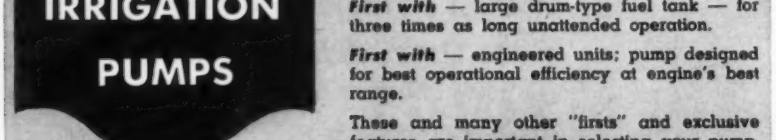

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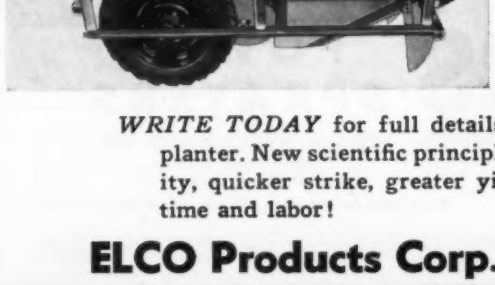

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- Plants up to 30,000 Plants per Hour
- Plant Mortality Cut to Minimum
- Eliminates Skips
- Row Spacing Adjustable from 18"-60"
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WRITE TODAY for full details on this great new transplanter. New scientific principle guarantees lower mortality, quicker strike, greater yield—plus huge savings in time and labor!

ELCO Products Corp. 8229 W. Greenfield Ave. West Allis 14, Wisconsin

GROWING PLANTS

(*Continued from page 19*)

freight. He also obtains some from livestock sale barns at nearby Iowa City, but trucking charges run up to $2.50 per ton or more. The manure is piled in shallow stacks until ready for use so it won't heat. Then just before putting into plant beds large stacks are made, watered if necessary, and allowed to heat just before placing in the beds.

Plant beds are temporary frame structures and built on new sites each year, as a sanitary measure. A scoop on the tractor removes about seven inches of the sandy soil from the proposed bed site and piles it along the side. The frame is erected, each bed being 100 x 14 feet. Manure is put in to a depth of 12 inches, packed lightly, then covered with four inches of the sandy soil previously removed. Each bed requires about 30 tons of manure.

Sawdust Used

The first layer of sand is firmed lightly, then the seed potatoes laid in. Jason likes to plant them close and in rows with about a quarter of an inch between them. They are then covered with two inches of the sandy soil which has been mixed with sawdust. This mixture, which contains about 30 per cent sawdust, keeps the surface loose and makes it easy for the sprouts to come through.

From five to eight of these beds are made each year at the Wolford farm, the first potatoes going in on April 1. No. 2 potatoes are used for seed, and each bushel produces about 3,000 plants. At bedding time Jason has a crew of seven men who can put in a bed complete, from start to finish, in seven hours. Being able to handle the manure and soil largely by mechanical means, Jason feels is an advantage over using hot water heat, where soil is usually moved out and in by hand.

Quality Plants

Each year from his own fields Jason makes some hill selections of each variety grown. By selecting from strong, healthy plants for his seed, he is sure of selling customers the best plants they can buy anywhere.

Varieties grown in the past few years have been largely of the little stem Yellow Jersey type, such as Manantico, K-35-61, and K-36, improved strains of the Yellow Jersey. Also some Nancy Hall and Porto Rico Yams are grown for a few customers.

This year Wolford's main crop will be that of Oklahoma 46, a new high-yielding variety that has proved its worth in many areas. Little stem Jerseys will also be grown. THE END

ACREAGE GUIDES

THE USDA has announced its 1954 acreage and marketing guides for summer and fall vegetables for fresh use, summer melons, vegetables for processing, sweetpotatoes, and late commercial potatoes.

The acreage recommendations, with average yields, will provide an adequate volume of marketings to meet all requirements, according to the USDA. It is the general policy of the USDA to limit surplus removal assistance to those commodities and areas where there has been substantial compliance with the acreage and marketing guides. On the other hand, compliance with the guides program does not commit the USDA to provide assistance for any commodity or area.

The guides suggest an acreage of summer vegetables for fresh market about equal to that in 1953, a decrease of two per cent for fall vegetables, a decrease of 11 per cent for summer melon crops, and a decrease of five per cent for vegetables for commercial processing. The guide for sweetpotatoes is an acreage for harvest equal to that in 1953. The planted acreage guide for late crop potatoes is eight per cent less than in 1953.

In the aggregate the 1954 guides for 15 summer vegetables total 498,650 acres to be available for harvest (compared with 499,930 acres in 1953); for 13 fall vegetables the guides total 251,870 acres to be available for harvest (compared with 256,720 acres in 1953); for two summer melon crops the guides total 383,700 acres to be available for harvest (compared to 431,850 acres in 1953); and for sweetpotatoes the guide is 350,000 acres to be available for harvest (compared to 349,700 acres in 1953).

Vegetables for Processing

The guides for vegetables for processing are on a planted acreage basis. in contrast to other vegetable guides. For nine vegetables for commercial processing the guides total 1,688,541 acres to be planted (compared to 1,773,330 acres planted in 1953).

The late crop white potato acreage guide by states amounts to a national total of 1,022,700 acres (compared to 1,114,500 acres in 1953). With average yields the guide acreage should produce 272.2 million bushels of white potatoes. This would be a decrease of about six per cent in production, compared to the 1953 crop, but this supply should be sufficient to meet all known requirements. THE END

NEW

★ **Low-Seat Case Tractor** gives you eager 2-plow power. High-torque, heavy-duty engine has lugging ability for hard pulls.

★ **Low platform,** one step from the ground, in front of fender—no climbing over rear-mounted implements. Driver can sit or stand.

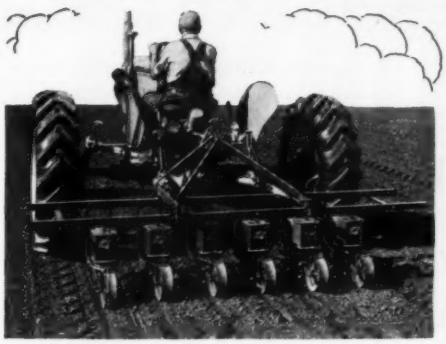
★ **Low Bodyguard® seat,** suspended on torsional rubber springs, absorbs shocks for all-day riding comfort. Easy to get on; handy to controls.

★ **Full crop clearance** to cultivate up-front with "look-ahead" cultivator—or behind with Eagle Hitch mounting of sweeps or shovels.

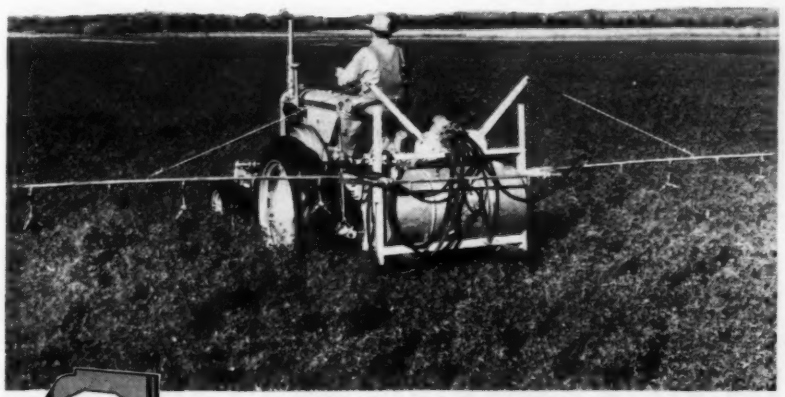
★ **Adjustable tread,** front and rear, fits wide range of row spacing. Low center of gravity gives remarkable stability on side slopes.

PLUS ONE-MINUTE EAGLE HITCH

Famous "hook up sitting down" makes implement changes quick and easy. Constant-depth principle of Eagle Hitch helps you do better work, too.



Eagle Hitch Economy Tool Bar takes wide variety of tillage teeth, sweeps and shovels, as well as planter units. Low cost lets you have several tool bars, keeping tool set-up on each while you make one-minute changes of complete implement. Works with all models of "VA" Series.



CASE

Field spraying goes fast with spray rig on Eagle Hitch utility carrier, as shown here with high-clearance model of Case "VA" Series. Constant Hydraulic Control provides instant adjustment for height of nozzles to suit conditions. Utility carrier mounts in a minute, lowers to load, lifts level, hauls bags of fertilizer, crates of produce, barrels, boxes, bales. Eagle Hitch implements include pivot-action plows and tandem harrows that cut full width on curves, without side-thrust, because they pivot at proper point—in implement itself. Whatever size of tractor you need . . . from low-cost 2-plow to 5-plow Diesel . . . see your Case dealer or send for catalog. Write J. I. Case Co., Dept. C-134, Racine, Wis.

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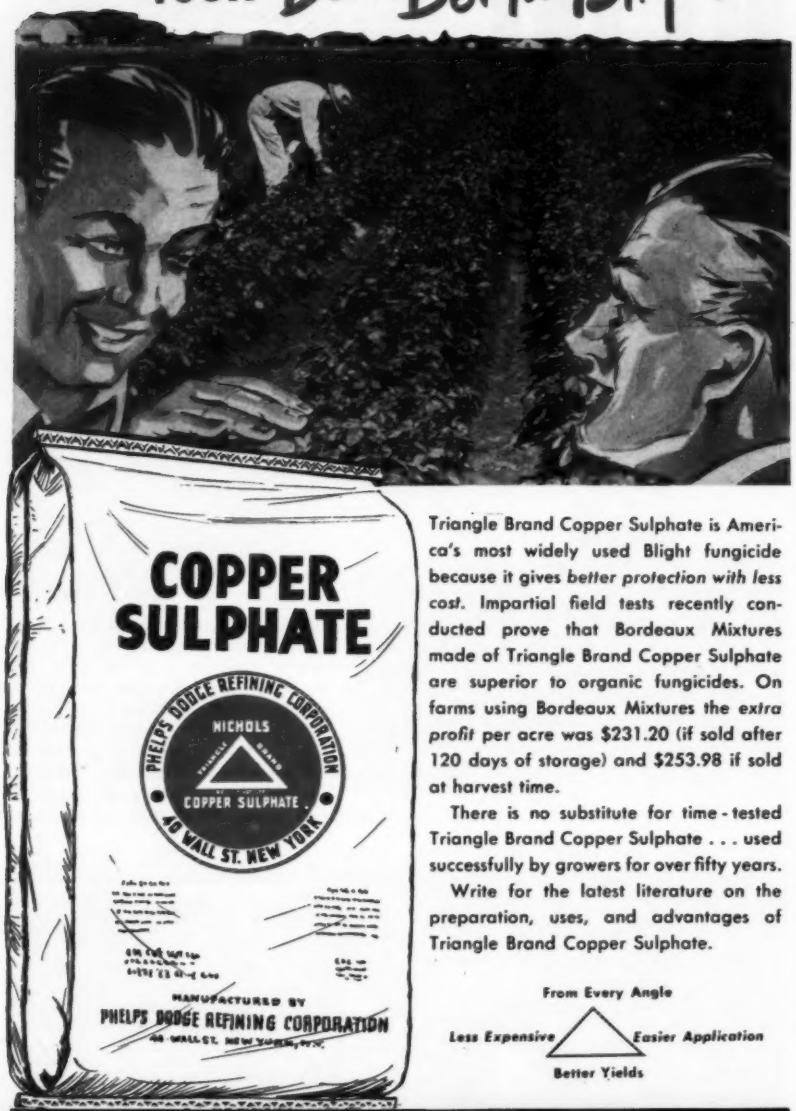

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There is no substitute for time-tested Triangle Brand Copper Sulphate . . . used successfully by growers for over fifty years.

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These offers are good only in U.S.A.

Enclosed find $.....for which please send me the magazines marked with an X.

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A POTATO PLAN

This cost-of-production insurance plan, presented during the Suffolk County Potato Growers convention at Riverhead, L. I., on February 10, may have great merit. Potato growers are urged to express themselves on the idea. Send your comments and criticisms to The Editor, AMERICAN VEGETABLE GROWER, Willoughby, Ohio.

THERE are present in the existing agricultural programs concerning acreage allotment and support prices several inherent factors which have a definite tendency to destroy the respective programs. They are: 1) the natural tendency when acreage is restricted to plant only the best land; 2) to produce more by better use of fertilizer and water; 3) to enlarge the operation in order to secure the same proceeds by acquiring more land with allotment; 4) a premium is automatically put upon finding legal loopholes to increase allotments on the basis that the government has plenty of money; 5) production is frozen in existing areas and price differentials are also made inflexible; 6) the programs are open to manipulation by politically powerful states and regions.

In view of the above there has been considerable interest in the Northeast in a voluntary farm program having some factors in its makeup which might assure its eventual success. This is an attempt to condense and assemble the thinking from many sources into a possible program which might be practical in the Northeast and which we will have to call "Price Insurance."

Insurance Program

The basic premise is that over one or more complete cycles any commodity must return to the producer cost of production plus a reasonable profit. Therefore an insurance program on the mutual basis is possible. Potatoes might be a crop to start with, for they are perishable, with a three- to five-year cycle, and only 20 counties in the nation produce the bulk of the crop. Furthermore, potato growers are in a mood to try something.

After enabling legislation and national referendum, district associations might be set up in each county or district similar to Production Credit and these associations be provided with government capital or credit to be retired over a long period of years out of association earnings, and the associations might issue policies insuring individual farm operations up to 75 per cent of cost of production under the following conditions:

1) That the applicant present figures showing his expected cost of production and pay a certain per cent premium upon *his* figures for which the association would issue a policy insuring 75 per cent of the value of *his* figures.

2) In case of loss the operator must show itemized receipts and sales tickets for his total production substantiated to the satisfaction of the association and the association would then pay to the policyholder the difference between such receipts and 75 per cent of his cost of production figure.

3) That the association not be required to take all risks.

4) Preferential rates might be given to operators with low loss history, and rates for different associations should reflect such factors as

We have life insurance, health insurance, hail insurance. Why not cost-of-production insurance?

irrigation, nearness to market, etc., but each association would be held responsible for its own successful operation.

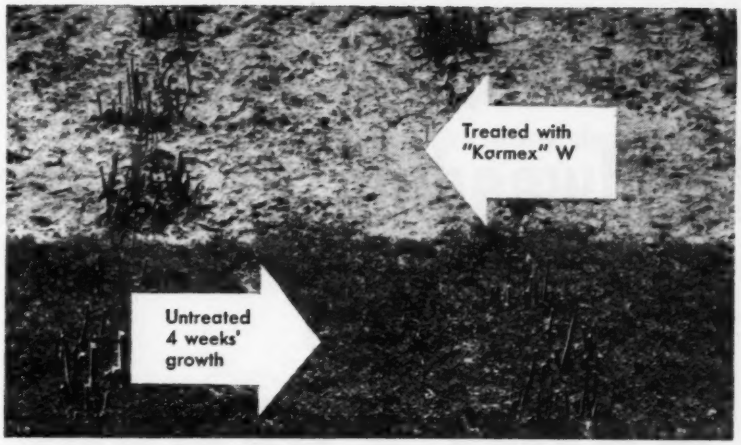
5) No policy should exceed $50,000, and no "in-and-outer" will be taken (a three-year policy might solve this).

Advantages of Program

Some of the advantages of such a program are: 1) Farmers will be operating their own program and will be personally interested in its success. 2) Farmers would be paying in every year but drawing out only when they really need it and, like other insurance, it would be "deductible." 3) It would allow free movement of the market and would not encourage overproduction (at 75 per cent of cost). 4) As actuarian figures become available the rates would reflect the relative position of competing areas and even individuals. 5) It would result in much better public relations and, if advisable, could do publicity work. 6) It would definitely help an operator to obtain credit, for he could assign his policy to cover a loan.

In conclusion, it should be pointed out again that this is not a proposed program. It is an attempt to get before farmers some of these ideas, in themselves not new or original, with the hope that a voluntary, far-sighted farm program may be developed which will benefit both the producer and consumer. THE END

Working drawings for an attractive roadside market with movable racks and overhanging roof are available for 50 cents from AMERICAN VEGETABLE GROWER, Willoughby, Ohio.



Du Pont Announces

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Herbicide

For low-cost control of weeds in asparagus

KARMEX® W a new substituted urea herbicide, provides growers new efficiency and economies in controlling weeds in established asparagus beds. Extremely low rates of application have proven highly effective in field trials conducted in all important asparagus-growing areas.

ECONOMICAL Low dosages, 1 to 4 pounds per acre, keep asparagus beds free of annual weeds and grasses for 6 weeks or more.

EASY TO USE A wettable powder, ready to mix with water. Apply as a pre-emergence blanket spray and again as soon as possible following completion of harvest.

OTHER FARM USES Use "Karmex" W at higher rates of application to kill weeds and grass around farmyards and building areas for a season or longer.

Get Karmex® W at Your Dealer's Now!

See for yourself how this new herbicide will cut down on your weed-control costs this spring. Consult your local agricultural authority on dosages and timing of applications.

On all chemicals always follow directions for application. Where warning or caution statements on use of the product are given, read them carefully.

DU PONT REG. U.S. PAT. OFF. **Karmex® W** *Herbicide*

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WEEDKILLER

With hand labor costly and hard to get, more and more onion growers are weeding *chemically* with AERO Cyanate. Production costs are substantially lower, you save time and trouble as well as money.

Sprayed on young weeds, Cyanate kills them on contact, permitting the onion crop to grow to full size unhampered by choking weeds. Cyanate is water-soluble, easy to apply. Breaks down to form compounds containing ammonia and potash. Will not stain work clothing. Equipment cleans easily with plain water.

Write today for free booklet containing complete information.

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AMERICAN Cyanamid COMPANY

Agricultural Chemicals Division

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Branch Offices: Donaghey Bldg., Little Rock, Ark. • P.O. Box 808, Winchester, Va. 5025 Pattison Avenue, St. Louis 10, Mo. • Burwell Building, Knoxville, Tenn. 1440 Broadway, Oakland 12, Calif. • 3505 N. Kimball Avenue, Chicago 18, Ill. Brewster, Fla. • Room 409, Capital Club Building, 16 West Martin Street, Raleigh, N. C.

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Add to your income by selling AMERICAN VEGETABLE GROWER. It's a logical combination for AMERICAN VEGETABLE GROWER will help your customers get the best results from the seed you sell them. *Make every call pay!* This means additional cash for you regardless of whether you sell a seed order or a subscription to AMERICAN VEGETABLE GROWER.

Write today for our liberal, seed agents' plan. Address:

EDWARD MEISTER, General Manager

106 Euclid Ave. **AMERICAN VEGETABLE GROWER** Willoughby, Ohio

PESTICIDES

(*Continued from page 11*)

TDE (*DDD*) and *Perthane* are similar to DDT but are much less toxic. They have been specifically used against caterpillars and other leaf-feeding insects on such crops as lettuce and cabbage that are close to harvest. Their low toxicity is a distinct advantage on problems that occur near harvest. However, some of this advantage is lost in their inability to control as many insects as well as does DDT.

Dieldrin and *Heptachlor* are new materials that are showing considerable promise in the vegetable field. They control leafminers, stink bugs, grasshoppers, beetle larvae, seed corn maggots, wireworms, thrips, cucumber beetles, leafhoppers, weevils, true bugs, grasshoppers, crickets, and many other pests. As they are new materials, much work needs to be done on them but they hold considerable promise for the vegetable grower. Their high toxicity and detrimental effect on beneficial insects may hold them back but eventually we will learn how to work with them.

Aldrin is another new material that shows much promise, but it probably isn't as good an all-around insecticide as dieldrin. Specifically it is one of the best materials available on grasshoppers but its use will probably be limited.

Endrin and *isodrin* are new compounds that hold great promise for many of our pest problems. Although it may be several years before they are fully evaluated, we can expect a great deal of use from them.

Phosphates for Mites and Aphids

Among the phosphates, *parathion* and *TEPP* are the two best known. They have many uses and are especially good on mites and aphids. Parathion has a residual effect that must be taken into account before using it. It is one of the most poisonous materials available today. It is one of the best insecticides available but its usage is somewhat restricted by its high toxicity to humans. TEPP does not have quite the range or ability of parathion but plays an important role in vegetable production because of lack of residual effect. It is frequently used for aphid control just one or two days before harvest. There is no residue after 24 to 36 hours and for that reason is a very valuable material. In regard to acute toxicity it is even slightly higher than parathion and extreme caution must be used in applying it.

Malathion is another new phosphate material that holds a great deal of promise for the vegetable grower. It affects nearly the same pests as parathion and has the added advantage of

having a toxicity even lower than DDT. It has some residual effect which is an advantage over TEPP but it is not so persistent that there is any great danger from its use. It will control spider mites, aphids, scale insects, leafhoppers, some caterpillars, beetles, thrips, and many other pests. This material and others of this same nature that are being developed should prove to be a boon to the vegetable grower.

Systemics

Systemics such as *demeton* (Systox) and *OMPA* are capable of doing an excellent job on spider mites and aphids of vegetables. However, they cannot be used at this time because there is not enough information on how they act in the plant. These materials are absorbed into the plant and then kill the pests that suck the plant juices. As they are in the same toxicity category as parathion and TEPP we cannot take a chance on using them on a crop that will be consumed by man or animals. However, work is progressing on methods of analyzing for these compounds and in the near future either these or some similar materials will be developed that will do the job we want done without hazards. This type of a material is the nearest thing we have to our ideal pesticide.

In recent years there have been developed several new materials which are strictly acaricides (miticides) and they are finding a very useful place in our pest control picture. Some of these are *Ovotran, Aramite, Genite 923,* and *sulphenone.* These materials affect only spider mites and from this standpoint are very useful as they take full advantage of the use of natural enemies of these pests. By affecting only mites, natural enemies are allowed to increase and frequently the combination of these two factors gives much better control than either one could do alone.

We cannot forget many of our old standards such as the arsenicals, *pyrethrum, rotenone, cryolite,* and others but their usage is well known to all and they still play an important part in our pest control picture.

The value of pesticides in vegetable crop production is hard to evaluate on a straight dollars and cents basis. They have without question been one of the most important factors in recent years in the increased production and improved quality of the vegetables produced in this country. THE END

Read the advertisements and remember advertisers will be glad to send you catalogs, specifications, and prices. Be sure to say you saw it in AMERICAN VEGETABLE GROWER.

handy helpers

SPRAYING SYSTEMS
GunJet
SPRAY GUNS

For spraying all "hard to reach" places. Ruggedly built guns for pressures from 30 to 800 pounds. Adjustable from straight stream to cone spray. Balanced for easier handling. Write for Bulletin 65.

for better spraying at lower cost also ask your dealer for

SPRAYING SYSTEMS
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Famous for proved performance. Gives you the most from equipment and chemicals. Choice of over 400 interchangeable orifice tips for every spraying need.

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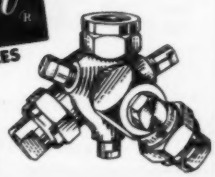

spray up to 66 feet wide with one compact assembly . . . for grains and grasses or liquid fertilizers. Write for Bulletin 66.

HOW SOLD . . . Spraying Systems Co. products are supplied by leading original equipment manufacturers and their dealers everywhere.

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A Real Money-Maker!

a
PROVEN WAY
to make
BIGGER PROFITS
from your
RED BEETS
and CARROTS, etc.!

Harvest Up To 6 Acres A Day

The Scott-Urschel Red Beet and Carrot Combine—originally distributed on a rental basis—is now available for direct sale. Because of its speed of operation and labor saving features, it is ideally suited for farmers doing large acreage work. In fact, it is suggested that one machine be purchased jointly by several small acreage farmers, as the Scott-Urschel's capacity is normally greater than needed for the small size farm.

It is a rugged, field-proven combine that soon pays for itself by harvesting your crop more economically. Write for all the facts today!

COMPARE THESE ADVANTAGES:

- Allows beets and carrots to be harvested as needed—stock piling not necessary.
- Increases yield by getting *all the beets and carrots*—even the smallest ones.
- Shortens harvest season being able to operate under bad weather conditions and in almost any type soil.
- Does not tie up tractor during harvest—may be easily unhitched at any time.

DIGS, TOPS, AND LOADS IN ONE EASY OPERATION!

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YOU SHOULD KNOW

Burpee's Surecross
Hybrid Sweet Corn

Join the many market growers who are enjoying bigger profits with this high-yield improved main crop yellow hybrid, introduced by Burpee.

The handsome, thick, deep-kerneled ears have 16 or 18 rows. Their creamy yellow color holds its fresh appearance on the market, as well as in the can or frozen food pack.

Surecross matures in about 88 days. There are usually 2 ears to each 7 to 7½ ft. stalk, held at the right angle for easy harvesting. The tight husks keep corn borer damage at a minimum.

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MANAGER,
MARKET GROWERS DIVISION

W. ATLEE BURPEE CO.
Seed Growers
PHILADELPHIA 32, PA.
CLINTON, IOWA RIVERSIDE, CALIF.

Don't forget!....

Parathion, when used to control one insect, controls others present at the same time. Here is real economy and efficiency.

AMERICAN CYANAMID COMPANY
New York 20, N. Y.

KILL WEEDS

(*Continued from page 9*)

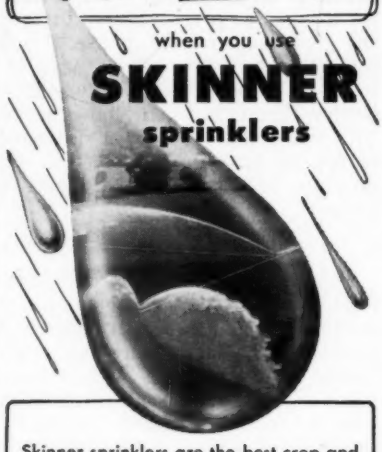
TCA. At rates of five to eight pounds per acre of the 90 per cent sodium TCA, this herbicide is almost specific for seedling grasses. It is now extensively used as a pre-emergence spray on beets and is finding a place in potatoes, asparagus, field-seeded cabbage and tomatoes, and several other vegetables. However, some broadleaved crops are severely injured and cannot be treated; beans, sweet-potatoes, and the vine crops are notable among these. Since TCA is primarily a grass killer its use is limited to areas where grasses are serious but it can often be combined with other herbicides so that both grasses and broadleaved weeds are killed.

Alanap 1 (N-1 naphthyl phthalamic acid). This new weed killer, on the market for the first time in 1953, is being used most extensively on the vine crops. Muskmelons, cantaloupes, cucumbers, and watermelons are especially tolerant and have been sprayed both pre- and post-emergence. Certain varieties of pumpkins and squash are sensitive but others can be treated. For good weed control the treatment should be made as soon as possible after field seeding or transplanting. Results have been best on the lighter soil types and a large number of annual grasses and broadleaved weeds are easily controlled. Although best known as a selective spray for vine crops, it is also doing a good job in asparagus.

CMU is an important new herbicide but its use thus far has been mostly as a soil sterilant for non-crop land. It is effective on annual weeds at very low rates (one-half pound to two pounds per acre) and lasts for several weeks. Unfortunately it has caused injury to almost all vegetables grown from seeds on which it has been tried. Good results have been obtained on asparagus but the possible accumulative effect over a period of years has not been studied. There is some possibility of using it on certain other vegetables but much more experimental work is needed.

Crag Herbicide 1 (SES). This chemical weed killer is almost inactive on the foliage of plants but once in the soil it is converted to active 2, 4-D by micro-organisms. The soil, however, must be warm and moist for this activation to occur. It has found widest use for control of germinating weeds in crops that have some tolerance to 2, 4-D. Strawberries are the best example but it can also be used on raspberries, blackberries, and asparagus. It is applied following a clean cultivation and hoeing since it controls only germinating seeds and

dry spells can't hurt you-
when you use
SKINNER
sprinklers



Skinner sprinklers are the best crop and pasture insurance you can buy. They give you the uniform coverage and proper penetration needed for maximum growth . . . are sturdily constructed for trouble-free service and long life . . . and are available in a complete range of types and sizes to meet any need. Write today for full details.

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...for over a half century

DO HOURS of GARDENING WORK IN MINUTES WITH
ARIENS
Yardster
ROTARY TILLER

Prepare seedbed without spading; cultivate all season long without hoeing!

Two 10" cog-tire wheel

Make gardening easy with the Ariens Yardster rotary tiller! Tills 12" wide, up to 6" deep. Non-winding, non-breakable steel "L" tines. Complete hood protection. 2 H. P. engine. Optional 2-speed wheel drive. Rotary mower, power sprayer and other attachments. Priced amazingly low!

See your dealer or write:

Ariens

183 Calumet Street Brillion, Wisconsin

several applications are often made during the season. *Sesin* is a less soluble form of this herbicide that is being tried experimentally.

Methyl bromide is a soil fumigant that is finding a real place for control of weeds and other soil pests in plant growing beds. Applied under a gas-tight cover, it kills dormant weed seeds, yet leaves the soil in a few days making the planting of crop seeds possible. Due to expense and method of application it is not practical for field use but in the plant bed it can save many hours of hand weeding.

Other herbicides. Pre-emergence applications of *2, 4-D* on sweet corn and the use of both 2, 4-D and *calcium cyanamide* on asparagus and certain other vegetables is well known. However, the new chemicals are offering strong competition to these older herbicides. The sodium salt of PCP has been used for several of the same crops as the dinitro compounds but as yet has not been readily available to growers. *Endothal* has given good results in experimental trials as a pre-emergence spray for beets. Many other herbicides of the pre-emergence type are also being tested but a great deal more work needs to be done before they can be suggested.

How Long Will the Effects Last

Growers are often concerned about the possibility of injury to a sensitive crop that may follow one which was treated with an herbicide. There seems to be practically no danger of this happening with the treatments now being used on vegetable crops. At the rates used these chemicals ordinarily break down or are leached away in from four to eight weeks. The one possible exception to these statements is CMU. This material has a long residual life in the soil, being resistant to both breakdown and leaching. More information is needed on this weed killer before the hazard to succeeding crops will be known.

Every chemical that can be used on a certain crop without injury will fail to control some kinds of weeds. If these resistant kinds are not present in a field there is no problem but usually we have them to contend with. Fortunately a crop will often tolerate more than one herbicide, each chemical controlling some weed that the other will not. By combining two such herbicides a much more effective job of weed killing can be done. Combinations of 2, 4-D with TCA or chloro-IPC are already in commercial use and many other chemical mixtures have shown good results in experimental trials. As new products come on the market the possibilities for herbicide combinations will be even greater. THE END

The Original Soluble Fertilizer
for
VEGETABLE GROWERS

VHPF

(pronounced "Vip")
6—25—15
plus essential secondary elements

Costs Little --- Does Much

use 6 lbs. per 100 gals.

What VHPF Will Do

Reduces wilting—grows sturdy plants
Gives plants quicker start—develops more roots
Saves replanting costs—sprout seed faster
Increases yield—improves quality

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MILLER CHEMICAL & FERTILIZER CORP.
BALTIMORE 18, MD.

MORE AND BETTER **POTATOES**

Activo is Nature's own way of *energizing* soil for best crop yields with billions of friendly organisms, hormones, vitamins, minerals, BIOTICS. (Users report "Better than fertilizer!") Just apply to seed. More potatoes or your money back. Trial pkg. for 3-6 bu., $1 p'pd. Dealers, or **THE ACTIVO COMPANY, Bridgeton 66, Indiana**

Advertisers will be glad to send you details of their products. Be sure to mention AMERICAN FRUIT GROWER when you write.

jari POWER SCYTHE
(SELF-PROPELLED)

Cuts easily through heaviest high growth of weeds, brush, grass, even 1 inch saplings. Large wheels work over rough ground. Safe operation, will not throw objects. No exposed blades.

Jari Sr. is easy to handle, ruggedly built to perform where other power machines won't. If you have a tough cutting problem, it will pay you to investigate Jari.

3 models to choose from—Attachments for reel cutting, spraying and snow plowing. Write for complete information.

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BOOKS FOR YOUR HOME LIBRARY

AMERICAN POTATO YEARBOOK, 1953 edition, edited by John C. Campbell. 76 pages of vital information to the potato grower, shipper, dealer, and others interested in the potato industry. Articles include development of seed potato certification in the U. S., varieties, production, rules and regulations affecting seed potato shipment. An important feature is the list of research projects with names of individuals engaged in conducting research on Irish potatoes in the U. S. Valuable statistical information and tabulations on seed and table stock production also are included.....$2.00
(A complete volume of the Yearbook for 1948-1953 is available at $5.00)

WEED CONTROL by Robbins, Crafts, and Raynor. The second edition of this textbook and manual presents a modern view of the rapidly developing field of chemical weed control. Newer chemicals are covered and pre-emergence methods included. Its 503 pages are well illustrated.....$8.00

SOILS and FERTILIZERS by Firman E. Bear. The new Fourth Edition contains a concise presentation of recent advances in soil science which considers soil as one of the most important factors affecting plant growth. Featured in the new Fourth is a discussion of the many newly-developed soil chemicals; new chapters devoted to the resources of such important elements as nitrogen, phosphorus, potassium, calcium, and trace elements; recent information on the yield potentialities of crop plants. Profusely illustrated. 420 pages.....$6.00

DISEASES OF VEGETABLE CROPS by John C. Walker. The book thoroughly covers the diseases of such vegetables as asparagus, beans, celery, onions, etc. Each disease is discussed in regard to symptoms, cycle of development, and methods of control. It contains 629 pages and is well illustrated.....$7.50

Books sent postpaid on receipt of check or money order.

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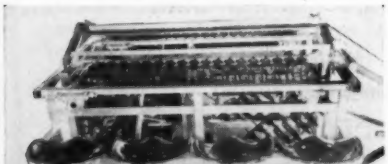
Willoughby Reader Service Dept. Ohio

NEW FOR YOU

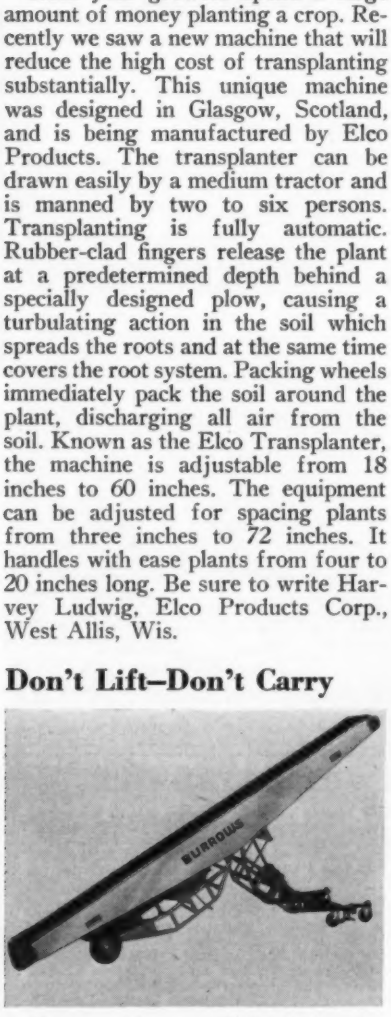
—to increase your profits

Plant Mechanically



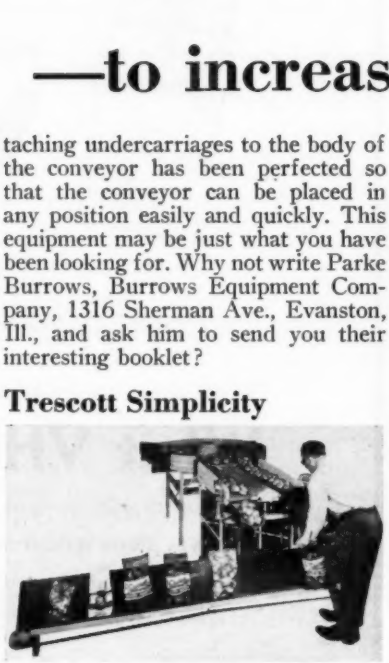
Each year growers spend a large amount of money planting a crop. Recently we saw a new machine that will reduce the high cost of transplanting substantially. This unique machine was designed in Glasgow, Scotland, and is being manufactured by Elco Products. The transplanter can be drawn easily by a medium tractor and is manned by two to six persons. Transplanting is fully automatic. Rubber-clad fingers release the plant at a predetermined depth behind a specially designed plow, causing a turbulating action in the soil which spreads the roots and at the same time covers the root system. Packing wheels immediately pack the soil around the plant, discharging all air from the soil. Known as the Elco Transplanter, the machine is adjustable from 18 inches to 60 inches. The equipment can be adjusted for spacing plants from three inches to 72 inches. It handles with ease plants from four to 20 inches long. Be sure to write Harvey Ludwig, Elco Products Corp., West Allis, Wis.

Don't Lift–Don't Carry



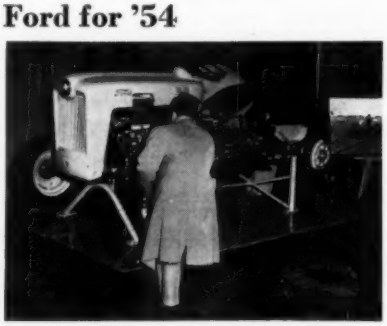
The new Burrows lightweight aluminum bag conveyor is designed to cut costs. It is equipped with a Goodrich rubber belt which holds the packaged bags and carries them up the steepest elevation. Another unique feature of this conveyor is that a method of attaching undercarriages to the body of the conveyor has been perfected so that the conveyor can be placed in any position easily and quickly. This equipment may be just what you have been looking for. Why not write Parke Burrows, Burrows Equipment Company, 1316 Sherman Ave., Evanston, Ill., and ask him to send you their interesting booklet?

Trescott Simplicity



The new Trescott assembly speeds and simplifies the packaging of onions and potatoes. The rotary table automatically supplies an even flow of vegetables to the Twin-Belt Autobagger. Filled bags are then placed on the right angle belt, where they then proceed to the closing station. The assembly fills 1,000 three-pound bags of onions in less than one hour. It will pay you to write Reg Kiefer, The Trescott Company, Dept. K, Fairport, N. Y., for full particulars.

Ford for '54



At the recent Vegetable Growers Association of America convention in St. Louis, the new Ford tractor was presented to growers in a cutaway fashion so that all of the improvements could be seen. The new Red Tiger engine and the many wonderful Ford improvements make this tractor one every grower should know about. Why not get the new Ford booklet entitled "New Ford Tractor." Write Jim Ewing, Midland Ford Tractor Co., Highway 66, Robertson, Mo.

Smart Irrigation

Once a grower has been able to determine whether or not to irrigate, he should have an instrument to measure the correct amount of water to put on. Just such a device, called the Irrometer, has been perfected and is accurate within three per cent. Irrometers are made in six standard lengths ranging from six to 48 inches. We urge you to write T. W. Prosser, 3695 Main St., Riverside, Calif.

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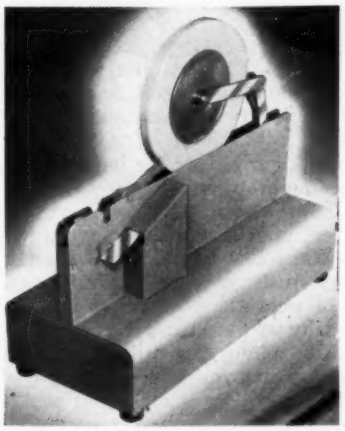

Recently we saw a new bag sealing machine which is ideal for both the large and small operator. It speeds up bag sealing, wire coding, tagging, labeling, and binding with a tight loop of tape. The "Tape-Lok," is inexpensive and automatically applies tape to any size package. It weighs only eight pounds. Write Nelson Pippert, American Specialty Co., Amherst, Ohio.

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Only 25c a word for one-time insertion; 20c a word for two-time insertion; 15c a word for four-time insertion—CASH WITH ORDER. Count each initial and whole number as one word. ADDRESS AMERICAN VEGETABLE GROWER, Willoughby, Ohio.

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LATE MODEL SPEED SPRAYER FOR SALE. Any reasonable offer. BOX 54, Fairhope, Ala.

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GOOD USED FARM CONTAINERS—SPLINT handle baskets, bushels, boxes, hampers, bags, nailed and wirebound crates. Truckload or carlots. Call or write ZELVY BROS. CONTAINER CO., 2005 Orange Ave., Cleveland, Ohio.

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BUILD YOUR OWN ELECTRIC GERMINA-tor for those slow germinating seeds. Excellent for old seed. For large or small growers. Send only $1.00 for plan. HIAWATHA VALLEY GARDENS, Box 270, Red Wing, Minn.

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SWEET POTATO PLANTS, 1,000 OR 100,000. ROBERT SIMMONS, Sharon, Tenn.

CABBAGE PLANTS:
2000 for $3.00, 6000 for $8.40
ONION PLANTS:
6000 for $4.50
DELIVERY NOW UNTIL NEXT JUNE
SHIPPED BY EXPRESS, F.O.B. HERE
WRITE FOR OUR COMPLETE LIST
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TOMATO PLANTS—ALL LEADING VARI-eties, certified, $3.50 per thousand. CABBAGE PLANTS—ALL LEADING VARI-eties, certified, $1.75 per thousand. JOHN THORNHILL PLANT COMPANY, Tifton, Georgia.

SWEET POTATO PLANTS, DELICIOUS IM-proved Portoricos postpaid: 200—$1.25; 500—$2.25; 1000—$4.00; 2000—$7.50. SMITH PLANT FARMS, Gleason, Tenn.

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WANTED USED PLANET JR. WITH SEEDER and fertilizer attachment—good condition, low price. JOHN KLEMENTS, JR., Huntsburg, Ohio.

High Pressure SPRAY HOSE

800 Lbs. Working Pressure

Flexible, High Pressure Horticultural Spray Hose. Resistant to Oils, Chemicals, Insecticides and all D.D.T. Sprays.

Each length complete with High Pressure Couplings attached to fit all Pressure Sprayers.

Hose is New, First Grade, Guaranteed!

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100 ft.	31.50	36.50	57.00

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Brings You the Easy

NEW and PROVEN WAY to buy POWER EQUIPMENT

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Years of experience in perfecting ROTO-HOE plus plenty of "garden testing" by thousands of users, insures your satisfaction. Send for our new free 16-page full color catalog which can save you hundreds of dollars. Look at these ROTO-HOE advantages:

Low first cost, complete ROTO-HOE only $134. • Many thousands of satisfied customers. • Variety of low cost attachments to do extra jobs. • Minimum storage space needed —hang attachments from the garage wall. • Low cost replacement parts if ever needed.

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Better send for a copy—25c each

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The Improved

ARCO "OPEN RING" *RUBBER BANDS*

QUICKER to pick up—FASTER to apply—STURDIER all around.
SAVES time and money. IN ALL STANDARD SIZES.

Send your order now, this handy way . . . **ARCO** ( ) RUSH .. LBS. NEW OPEN RING BANDS
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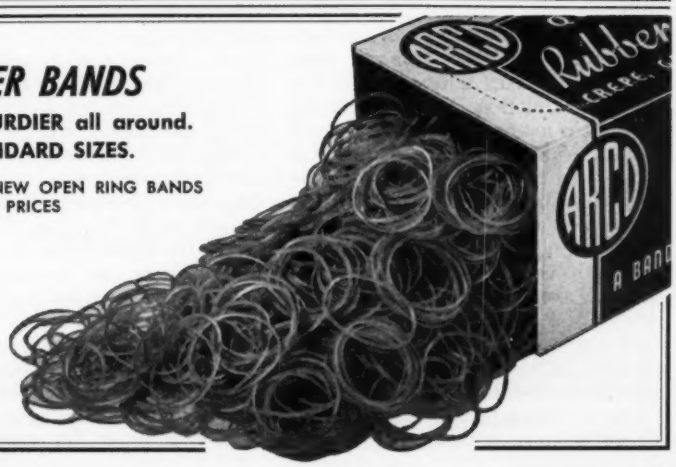

Marketing Study Pays

AS we lay plans for our planting season it seems that it would be wise to give some thought to the marketing of the crops we are growing. So often we plant a given acreage to certain vegetable crops without giving one thought to what we will do with them when harvesttime comes. The wise grower is the one who foresees his market before he plants his crop.

It is not always possible to know exactly what you can or will do with a particular crop weeks before harvest. Nevertheless, we can work towards a certain marketing goal. Most market gardeners produce for local consumption while the large truck farmers must produce for shipment into large consuming areas. Each is skilled in his own production methods, and, likewise, each must be skilled in his own marketing methods. We seem to know the tools of production so much better than we do the tools of marketing.

Periodic market reports from both government and private sources are tools to be used in designing our marketing programs. Thorough study of them for one or more years for a given market could help a grower determine which crops would be most profitable for him to grow this year and the ones least likely to make him a profit this year. Such knowledge of market conditions of the past will help him work out a plan for increasing acreages of certain vegetables while reducing acreages of others. It balances the market system.

Marketing agreements are other tools of the large truck farmers to help them market their abundant crops orderly and in some relation with consumption. They have helped to strengthen the prices of a given commodity through a particularly heavy marketing period. They serve a definite purpose.

Another tool in marketing is a system of cost accounting While not directly affecting the actual marketing of a crop, knowing just what it is costing you to produce a given crop tells you what price you must receive in order to make the necessary profit. Crops on which you cannot reduce costs of production may be the ones you should cut acreages on too. Likewise, those crops on which you can make good profits may be the ones for you to expand.

Advertising and sales promotion can help greatly to expand consumption of certain vegetables. We certainly have not exploited this field adequately yet. It is a tool that can be used effectively against market gluts, as well as a regular market practice.

High quality produce is the best aid to marketing. Perhaps those vegetables which you can grow to perfection are those you should emphasize. We are in the business to stay, so if we do those things which we can do best, we are doing our utmost.

Making a Forecast

EVERY few months the Outlook and Situation Board of the U. S. Department of Agriculture gets all its facts and figures together, takes a deep breath and makes a forecast on the vegetable situation. These forecasts are written in general terms and don't seem to mean much at first glance. But if they are carefully analyzed in the light of conditions in your own market they can be a valuable aid.

The latest report says that demand for fresh vegetables is expected to continue about as strong in the first quarter of 1954 as the same period in 1953. During the first quarter, heavy storage supplies of 1953 crop potatoes, cabbage, and onions are expected.

Larger tonnages are also expected for sweet corn, lettuce, escarole, cucumbers, tomatoes, beets, and artichokes. Smaller tonnages are expected for cabbage, carrots, celery, snap beans, shallots, cauliflower, kale, green peppers, and green peas.

As far as canned and frozen vegetables are concerned, the 1953 commercial pack plus carryover stocks are larger than they were a year earlier. There is a possibility of slight easing in demand by the time 1954 packs are ready for distribution. It is probable that canners and freezers will be a little bit conservative in planning their scale of operations for 1954.

Canned sweet corn, green peas, tomato juice, and snap beans probably are slightly to moderately larger in supply than a year earlier. Stocks are somewhat lower for canned asparagus, spinach, tomatoes, tomato paste, and other tomato products.

With frozen vegetables, the increase in the packs of asparagus, peas, and cut corn have been greater than the probable increase in consumption.

Production of vegetables for fresh market in 1953 was the greatest in history amounting to 10 million tons. The next highest mark was 9.8 million tons in 1950.

A Thought Worth Remembering

FRANK L. CLARK is the owner of the Clark Seed Farms and one of the best known potato growers in the country. He is thoroughly acquainted with growing and marketing potatoes from Florida to Prince Edward Island and has farms of his own in Tioga and Steuben counties, New York, and in Tolland County, Connecticut.

In a recent issue of the *American Agriculturist,* he made a point on acreage cuts which hit at the heart of the problem. Here is what he said, "Last spring I made a substantial cut in my potato acreage. I would have cut it more except for one thing. I couldn't forget the possibility that the government might set acreage allotments, and that if they did my allotment would be based on the acreage I had been growing. In other words, if I had cut my acreage more than I did, I faced the possibility of another drastic cut by a government control program. It is my opinion that this fact had a big effect on the 1953 potato acreage. . . . . the possibility of future government control of acreage encouraged farmers to maintain or increase their plantings. They did this to obtain a higher government acreage allotment in case such controls were later put into effect."

Mr. Clark goes on to say, "I understand that the well-established growers of some crops (for example, tobacco) are perfectly happy with acreage controls. I am also told that young fellows who want to grow tobacco and who cannot get an acreage allotment aren't so happy! Under a planned economy a young man does not have the opportunity to express his ability. A young man with high ability and one with low ability can go before a board for acreage allotments and each receive the same treatment."

Potato grower Clark has done some straight thinking which is worth remembering and repeating.

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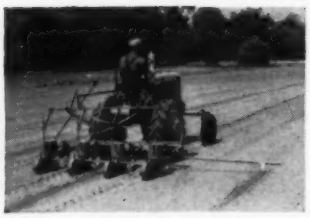

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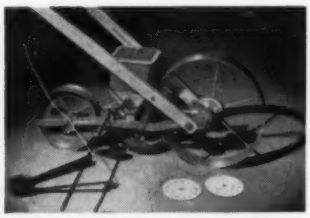

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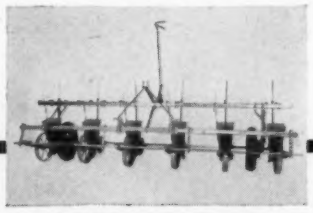

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Malathion more useful than ever!

The U.S. Department of Agriculture has accepted, as of January, 1954, the following additional claims for malathion—Cyanamid's new multi-purpose insecticide:

APPLES:
Codling moth
Plum curculio
Red-banded leaf roller
Bud moth

CHERRIES:
Black cherry aphid
Fruit tree leaf roller

PEARS:
Codling moth
Plum curculio
Fruit tree leaf roller
Red-banded leaf roller

PEACHES:
Spider mites:
European red mite, two-spotted mite
Oriental fruit moth
Plum curculio

PLUMS and PRUNES:
Mealy plum aphid

BEETS:
Aphids

CUCUMBERS, SQUASH and MELONS:
Aphids
Spider mites

EGGPLANT:
Spider mites
Aphids
Lace bug

PEPPERS: Aphids

PECANS:
Spider mites
Aphids

ORNAMENTALS:
Six additional scale insects, also lace bug, leaf miners, pine shoot moth, tent caterpillar

Previously accepted label claims for malathion:

APPLES: spider mites: European red mite, two-spotted mite, Willamette mite, clover mite; woolly apple aphid, green apple aphid, rosy apple aphid, Forbes scale

PEARS: spider mites, pear psylla

GRAPES: grape leafhopper, spider mites, mealybug

DATES: nitidulid beetle (dried fruit beetle)

TOMATOES: spider mites, aphids

BEANS: Mexican bean beetle, leafhopper, spider mites

CABBAGE, BROCCOLI, TURNIPS, MUSTARD, KALE: aphids, imported cabbage-worm, cabbage looper

PEAS: pea aphid

POTATOES: aphids

COTTON: aphids, spider mites

SEED ALFALFA: spider mites, aphids

ORNAMENTALS: Twenty label claims including aphids, mites, thrips, mealybugs, leafhoppers, scale insects, etc.

Malathion also controls FLIES, even DDT-resistant strains, in and around buildings which house domestic animals.

This extends the usefulness of malathion to growers by enlarging the range of crops and pests covered. Malathion is preferred by many growers because of its high efficiency in controlling insect pests and its wide margin of safety for the applicator.

Consult your local agricultural authorities for suggestions on dosages and application procedures. Malathion is marketed by local and nationally known formulators under their own brand names.

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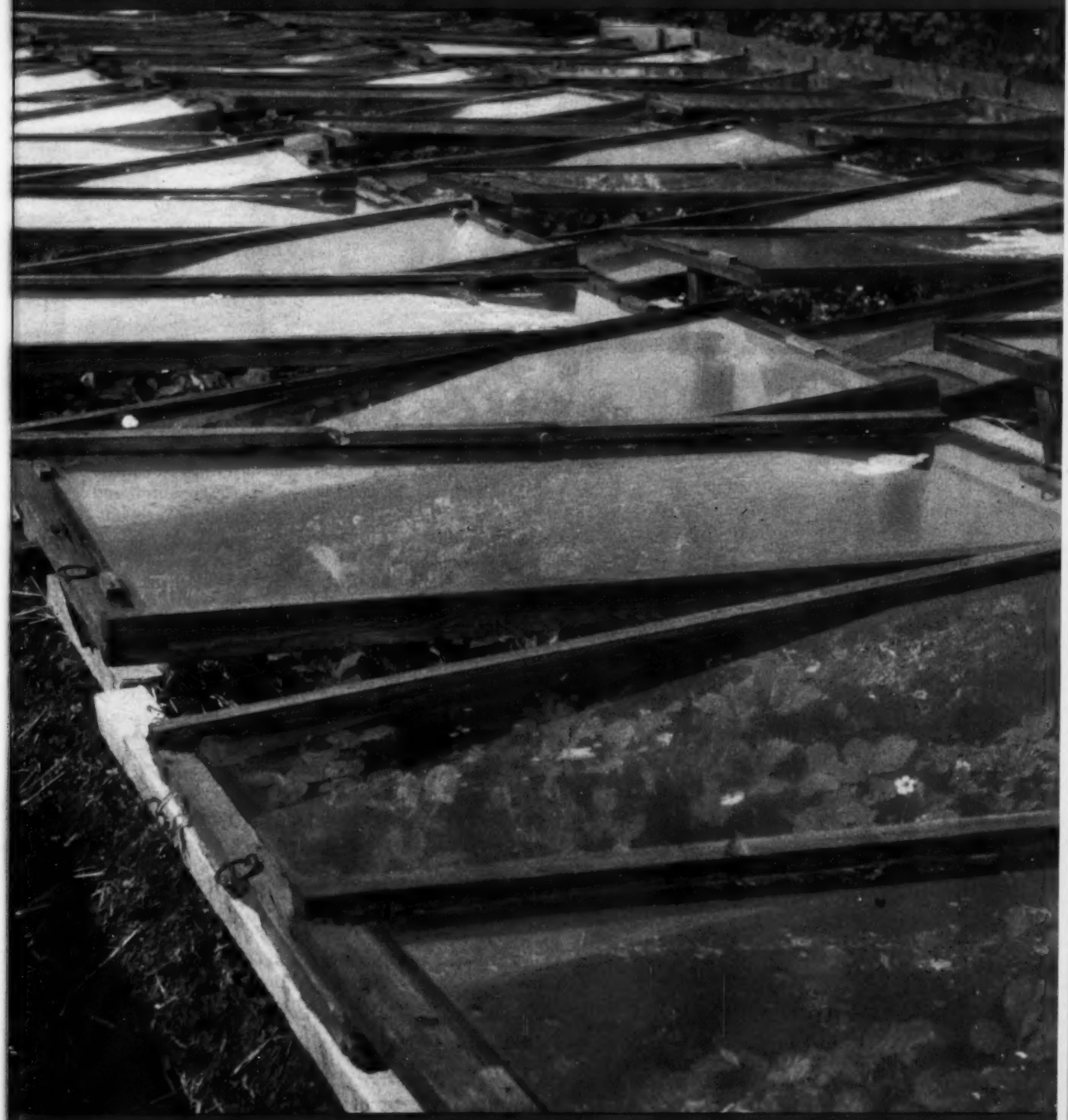

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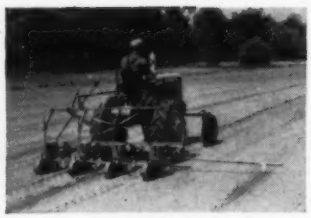

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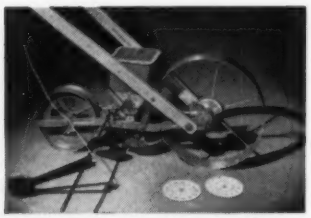

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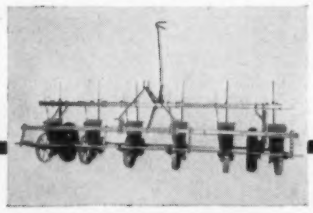

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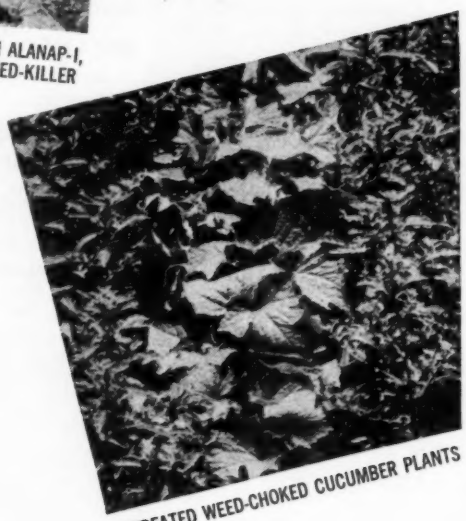

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